

OUR-NATIVE-BIRDS



D~LANGE

OUR NATIVE BIRDS

HOW TO PROTECT THEM AND ATTRACT
THEM TO OUR HOMES

•The M Co. •

b76
h26x
Birds

OUR NATIVE BIRDS

HOW TO PROTECT THEM AND ATTRACT
THEM TO OUR HOMES

BY

D. LANGE

AUTHOR OF "HANDBOOK OF NATURE STUDY"
INSTRUCTOR IN NATURE STUDY IN THE PUBLIC SCHOOLS
OF ST. PAUL, MINNESOTA

WITH ILLUSTRATIONS



New York

THE MACMILLAN COMPANY

LONDON: MACMILLAN & CO., LTD.

1899

All rights reserved

COPYRIGHT, 1899,
BY THE MACMILLAN COMPANY.

270012

Norwood Press
J. S. Cushing & Co. — Berwick & Smith
Norwood Mass. U.S.A.

PREFACE

IN the following pages an effort has been made to point out several means for bird protection which cannot be embodied in legal enactments. We are always ready to pass a law against an evil, but too often we provide insufficient means to carry out and enforce the provisions of the law. This, I regret to state, is the greatest obstacle to the effective legal protection of song birds, game birds, and mammals. If the friends of birds and nature do not tire in the good work of educating the young of the nation on these subjects, the time will come when game wardens will have much less to do than now. Education works slow, but it is effective.

My thanks are due to Mr. William T. Hornaday for permission to quote from his most interesting and valuable report on "The Destruction of our Birds and Mammals" made to the New York Zoölogical Society, and published by that society in its second annual report. Mrs. Elizabeth B. Davenport of Brattleboro, Vermont, has contributed from her long experience to the chapter on Feeding Birds in Winter, and Mr. Frank Bond of Cheyenne, Wyoming, describes his very

effective method of dealing with the English sparrow. My thanks are also due to several friends who have made valuable suggestions to me. The pen-and-ink drawings were made by Mr. Herman Giehler of St. Paul, Minnesota.

The special Bird Day matter, it is hoped, will be found useful in schools.

I should be glad to hear from any one who may try to protect and attract birds by the methods and devices recommended, or who may have new methods and devices to communicate. I hope that in the near future our State Agricultural Experiment Stations will pay more attention to the relation of birds to our homes and to farming and gardening, and to the study of the best means for protecting them.

D. LANGE.

ST. PAUL, MINNESOTA,
September, 1899.

CONTENTS

SECTION I

	PAGE
ARE THE BIRDS DECREASING?	1

SECTION II

CAUSES OF THE DECREASE OF SONG BIRDS	6
--	---

SECTION III

THE DECREASE OF GAME BIRDS	13
--------------------------------------	----

SECTION IV

PROTECTING SONG BIRDS AND ATTRACTING THEM TO OUR HOMES	19
---	----

CHAPTER I

By furnishing them Trees, Vines, and Shrubs. Flowers for Hummingbirds. General Suggestions for Tree- planting for Birds. Rural Schools and Nature	19
---	----

CHAPTER II

Provide Nesting-boxes. Do not cut down every Hollow Tree	33
---	----

CHAPTER III

Provide Drinking and Bathing Fountains	42
--	----

	PAGE
CHAPTER IV	
Feeding Birds in Winter, and in Unfavorable Weather at Other Seasons	46
CHAPTER V	
Miscellaneous. Dust Baths, Gravel, and Lime	62
CHAPTER VI	
Protecting the Birds from their Natural Enemies	64
CHAPTER VII	
The English Sparrow Question	72
CHAPTER VIII	
Birds on Hats, Boys, Collectors, So-called Bird Students, Bird Hunters, Ubiquitous Gunners	81
CHAPTER IX	
Song Birds as Food	90
SECTION V	
EDUCATION AND THE BIRDS	92
CHAPTER X	
Educating Adults	92
CHAPTER XI	
Educating the Growing Generation	96
SECTION VI	
THE BIRDS BEFORE UNCLE SAM	99

SECTION VII

	PAGE
GAME PROTECTION FROM THE NATURE LOVER'S POINT OF VIEW	126

SECTION VIII

MISCELLANEOUS INFORMATION	144
-------------------------------------	-----

I plead

For flowers, smiling fairies of the ground ;
For birds, on wings and breezes skyward bound ;
For trees, the lofty spires of hills we roam ;
For beasts, still persecuted in their forest home.

OUR NATIVE BIRDS

HOW TO PROTECT THEM AND ATTRACT
THEM TO OUR HOMES

OUR NATIVE BIRDS

SECTION I

ARE THE BIRDS DECREASING

ABOUT a year ago Mr. William T. Hornaday compiled what might be termed the first bird census of the United States.¹ He sent the following set of questions to a number of persons in every state and territory, excepting Alaska :—

1. Are birds decreasing in your locality?
2. About how many are there now in comparison with the number fifteen years ago? One-half as many? one-third? one-fourth?
3. What agency, or class of men, has been most destructive to the birds of your locality?
4. What important species of birds or quadrupeds are becoming extinct in your state?

The answers received to those questions and the conclusions drawn from them must, on the whole, be accepted as trustworthy. The following states reported

¹“The Destruction of our Birds and Mammals,” by W. T. Hornaday. In the “Second Report of the New York Zoölogical Society,” New York, 1898. Office of the Society, 69 Wall Street. The most valuable document ever published on the subject.

a decrease of bird life varying from 10 per cent in Nebraska to 77 per cent in Florida, namely : —

Arkansas,	50 per cent	Mississippi,	37 per cent
District of Columbia,	33 “ “	Missouri,	36 “ “
Colorado,	28 “ “	Montana,	75 “ “
Connecticut,	75 “ “	New Hampshire,	32 “ “
Florida,	77 “ “	New Jersey,	37 “ “
Georgia,	65 “ “	New York,	48 “ “
Idaho,	40 “ “	Nebraska,	10 “ “
Illinois,	38 “ “	North Dakota,	58 “ “
Indiana,	60 “ “	Ohio,	38 “ “
Indian Territory,	75 “ “	Pennsylvania,	51 “ “
Iowa,	37 “ “	Rhode Island,	60 “ “
Louisiana,	55 “ “	South Carolina,	32 “ “
Maine,	52 “ “	Texas,	67 “ “
Massachusetts,	27 “ “	Vermont,	30 “ “
Michigan,	23 “ “	Wisconsin,	40 “ “

These states and territories comprise about three-fifths of the whole United States, and this vast area shows an average decrease of 46 per cent.

The states of North Carolina, Oregon, and California reported that there were as many birds as fifteen years ago.

Four states — Kansas, Wyoming, Utah, and Washington — reported that bird life was increasing.

It is to be regretted that Minnesota, South Dakota, Arizona, Tennessee, Kentucky, West Virginia, Alabama, Nevada, Delaware, Maryland, and the Dominion of Canada were not included in this report.

The questions sent out refer to game birds as well as to song birds. A large decrease in aquatic birds is to be expected and cannot be prevented when a new

country is settled, or when the population increases in an old country. The gallinaceous game birds, like grouse, partridge, and quail, should not decrease in a farming district, unless they are hunted during the closed season, or hunted too much during the open season.¹ It is quite likely that want of water may also cause a scarcity of these birds.

Admitting that a general decrease in game birds was to be expected under the game laws as they have been enacted and enforced in these states, it is a deplorable fact that the song birds have also greatly decreased.

For Minnesota I make the following estimate based on my own observations and on that of others: Cat-birds, brown thrushes, meadow larks, kingbirds, rose-breasted grosbeaks, swallows, swifts, red-headed woodpeckers, blue jays, and quails have increased. This increase is particularly noticeable in the case of the last six. In the spring of 1898, I often heard two rose-breasted grosbeaks sing near the corner of Seventh Street and Maria Avenue, St. Paul, where an electric car passes at least every three minutes. Pinnated grouse, or prairie-chickens, and partridges have decreased.

Ducks in general have decreased on account of the drying up and draining of sloughs and swamps, and on account of excessive shooting, especially on account of shooting in the spring. Wood ducks, red-heads, mergansers, and canvas-back have decreased 50 per cent, all on account of much hunting. Green-winged teal, mal-

¹ The closed season is the time during which hunting or fishing is prohibited by law. In the open season fishing and hunting are legal.

lards, pin-tails, and widgeons have maintained the balance, while the blue-winged teal and the ruddy duck have increased.

Robins have decreased on account of being shot by farmers for depredation on berries. Bluebirds have decreased 50 per cent. Mr. J. B. Bean, of Nicollet, Minn., thinks that the great decrease in bluebirds is due to the late spring snow storm of a few years ago, when he found many bluebirds lying starved on the snow. In the spring and summer of 1898, I travelled from the southwest corner to the northeast corner of Minnesota and found all kinds of birds everywhere very numerous. I also saw more bluebirds than I had seen for years. The only causes I can suggest for this decided increase over previous years was a late spring with no late night frosts. The late spring may have prevented many birds from going farther north, and the absence of late frosts would favor their nesting and the rearing of the young.

Birds will often decrease or disappear from one locality and appear and increase in another locality. The red-headed woodpecker has, for instance, disappeared from some localities in St. Paul and appeared and increased in others. In May, 1898, I saw the bird on the open prairie, near a railroad track, five miles from the nearest natural scrub timber. The farm groves in that district are too young for woodpecker nests, but the birds, no doubt, nested in telegraph poles. I have found the same birds very numerous in burnt-over regions, where they nested in fire-killed trees. It

seems to me that for various reasons some of our birds have withdrawn into regions that are not often visited by the great majority of observers, and that there has been a general drifting from the eastern toward the western states. A number of years ago I certainly never saw a red-headed woodpecker on Minnesota prairies. I call attention to these facts to show how difficult it is to take a bird census and to find a trustworthy average for a large state with much variegated landscape features.

SECTION II

CAUSES FOR THE DECREASE OF SONG BIRDS

1. **Lack of Nesting Places.** — It is known to every country boy that woodpeckers and nuthatches are the carpenters of the bird world. They excavate old and decaying trees and limbs, and in the holes and hollows make houses for their young. Where old trees are numerous, these bird carpenters build more houses than they need for themselves, and the vacant or deserted woodpecker homes are eagerly sought by chickadees, titmice, brown creepers, wrens, and bluebirds; each bird selecting from the "To Rent" list a house which in size and location suits its taste. In larger holes, which probably were caused by the decay of broken branches and were enlarged by woodpeckers, small owls and the beautiful wood duck build their nests.

But where can these birds nest, when there are no old, hollow trees left standing? Most of them are compelled to leave the regions where their natural homes are no longer found. A few make use of old telegraph poles, old fence posts, and other substitutes. These places are, however, very much exposed to cats, birds of prey, thoughtless boys, and adult fool gunners. After one or two seasons the linemen put in a new telegraph

pole and the thrifty farmer replaces the old post. The birds are again homeless.

Another large class of song birds like the robin, the catbird, the brown thrush, the rose-breasted grosbeak, and nearly all the warblers, vireos, and many native sparrows either nest in brush, in tangles, and on low trees; or they love, at least, to be near such cover. Where the farmer cuts down all large trees and then pastures his cattle on a few acres of woodland, no underbrush and no tangles are left. American city lots and parks, for the most part, at least, also furnish but little shrubbery and very few of those thickets in which the birds love to nest and to live. The result is that native birds are scarce.

2. Lack of Water. — Nearly all birds love the vicinity of water. They drink frequently and love to bathe on the shallow banks of sand and pebbles. In most densely settled farming regions, nearly all ponds and many small lakes have been drained off and many streams and springs have dried up, either on account of the general drainage or on account of the clearing away of timber. The duck pond of the farmer is too near the house, is too far from cover, and is often dry. The pump trough is not available for the birds, because they cannot reach the water from its high rim. The conditions in most towns and cities are still more unfavorable. If the town has no water-works, it is practically uninhabitable for most birds. If it has water-works, the birds can drink and bathe only where the hose is placed on the lawn and allowed to run

for several hours. Need we be surprised that we miss the birds under these conditions?

3. **Cats.** — All domestic cats catch a bird, whenever they can, and many are confirmed bird and nest hunters. On the ground, in holes and boxes, in shrubs, and on small trees, birds and nests are alike exposed to their attacks. About the only nest a cat cannot reach is that of the Baltimore oriole, but should an overbold oriole fledgling fall to the ground, before it is wary and has mastered the new art of flying, the ever watching cats are almost sure to get it. And how many young birds fall to the ground out of the nest or from their perch!

If we consider that many farmers seem to keep about as many cats as the farm would support mice, and that many city families will, at least, keep a worthless cat, if not also a worthless cur, the scarcity of birds need not puzzle us.

I have often wondered if some species of small owl could not be domesticated, and displace the cat as a mouser. Some bird-lover ought to make careful experiments with owls for this purpose.

4. **Boys, Collectors, and So-called Bird Students.** — My experience with boys enables me to say that parents, teachers, and other adults are responsible for most of the mischief boys commit against birds. They are easily turned into bird protectors, as I shall show later. The individual with the egg and skin collecting mania, and the individual who makes collecting in a settled country a business are nuisances. Several periodicals and many

of the people who write for them and advertise in them belong to the same class.

We do not want more birds in dark and dusty collections; we want more birds to sing to us and our children from bushes and tree tops.

5. Birds on Hats. — The wearing of birds on hats has fearfully decreased, or almost exterminated a number of bright-plumed southern birds. I have not learned of song birds being hunted in the central and northern states of the Mississippi basin to adorn ladies' hats.¹

6. The English Sparrow. — There can be no doubt but that this pugilistic, chattering rogue worries away very many birds which would otherwise nest near our homes; however, its sins have probably been somewhat exaggerated.

7. The Lack of Food. — Insects of nearly all kinds and waste grain are so abundant in every settled region that perhaps no species of song bird has decreased on account of lack of food during the summer time. For autumn and spring migrants and for winter residents there is no such regular and abundant food supply.

8. The Extensive Use of Poison in Farming and Gardening. — I cite this as a possible cause for the decrease of birds. Since the potato-bug has spread over the whole country every gardener and farmer uses large quantities

¹ See: "The Wearing of Heron's Plumes or Aigrettes," by Frank M. Chapman. Published by the Audubon Societies of New Jersey and New York. Write for it to the secretary of any State Audubon Society.

See also: "The Work of the Audubon Societies," by the same author, in the *Delineator*, March, 1898.

of Paris green and other arsenical poisons. Although I have no evidence and am not aware that the subject has been investigated by any scientist, it seems that a number of insectivorous birds that are known to eat potato-bugs must be, at times, poisoned by eating insects paralysed by Paris green. It has been repeatedly observed that corn which has been impregnated with strychnine for killing gophers, blackbirds, and crows is at times eaten by quails, prairie-chickens, mourning doves, meadow larks, and other seed-eaters.

The only way to avoid the poisoning of song and game birds is to restrict the use of poisons to the most serious cases of insect, bird, and vermin pests—to cases that cannot be reached by any other means. We should not forget that birds and animals do not commit crimes against us; they simply live as their nature compels them to. If they wage war against us, they are simply fighting the battle for existence, which is the divine right of all life, and of animals and plants as well as of man; it is the unalienable birthright of all nature. Humane nations and humane thinkers have long ceased to consider all means fair in war. Should not man, who is now so far ahead in the struggle, consider some means unfair in his war with the lower creatures, especially as they cannot use unfair means?

We have need of much more light on the question of injurious birds and animals. Nearly every farmer and gardener is apt to exaggerate the injury caused him by bird or beast, because this injury is conspicuous, and is done within a few months, weeks, days, or even

hours. But the benefits rendered extend over the whole season or year, and elude the observation of most people. An owl may catch a thousand mice in a year, and the farmer does not know that there is an owl within a mile of his place, but let the owl catch a stray pullet and he is at once sentenced to be shot without investigation.

The dog and the cat, on the other hand, are held in much higher esteem than they deserve. In the city, nine dogs out of every ten are a nuisance, and constitute an element of danger to the inhabitants.

In the country, at least every other dog lives on bread he never earned and is nothing but a worthless Ishmaelite, whose teeth and claws are against every creature, from the moose in the forest to the mouse in the meadow.

CAUSES OF DECREASE IN BIRD LIFE AS GIVEN IN W. T. HORNADAY'S REPORT.¹

Of the series of one hundred and ninety reports now before us, about 80 per cent declare a decrease in bird life and state the causes therefor. The list of destructive agencies now operating against our birds is a long one, and it is interesting to note the number of observers who complain of each. The figures given below show the number of observers who have reported each

¹ This and other extracts from Mr. W. T. Hornaday's report on "The Destruction of our Birds and Mammals" are taken from his report as published by the New York Zoölogical Society with the permission of the author.

of these various causes in answer to the third question in the list.

1. Sportsmen and "so-called sportsmen," . . .	54 reports
2. Boys who shoot,	42 "
3. Market-hunters and "pot-hunters," . . .	26 "
4. Plume-hunters and milliners' hunters, . . .	32 "
5. "Shooters generally,"	21 "
6. Egg-collecting, chiefly by small boys, . . .	20 "
7. English sparrow,	18 "
8. Clearing off timber, development of towns and cities,	31 "
9. Italians and others, who devour song birds, . .	12 "
10. Cheap firearms,	5 "
11. Drainage of marshes,	5 "
12. Non-enforcement of laws,	5 "
13. Gun clubs and hunting contests	5 "
14. Trapping birds for sale alive,	2 "
15. Prospectors, miners, and range-riders, . . .	2 "
16. Collectors (ornithologists and taxidermists), .	5 "
17. Colored population,	4 "
18. Indians (for decrease of game quadrupeds), .	4 "

SECTION III

THE DECREASE OF GAME BIRDS

PRAIRIE-CHICKENS, partridges, and quails are always more or less abundant, unless they are hunted too much, or cannot find some shelter in timber during winter. For the protection of all our gallinaceous game birds, we need good and rigidly enforced game laws. The case of aquatic game birds I shall illustrate by a concrete example.

About twenty years ago, Loon Lake in Minnesota, covered an area of about fifteen square miles, and was from two to twenty-five feet deep. At that time swans and pelicans visited the lake in fall and spring, but no longer bred there. Canada geese, ducks, and coots nested on the lake. The lake teemed with pickerel, pike, and bullhead. On the tall trees of one of the many wooded peninsulas the great blue heron, the black-crowned night heron, and the black cormorants had established a large, flourishing heronry.

In the fall of 1880 the lake was lower than usual. In the following winter a very heavy layer of snow covered the ice and in the spring of 1881 thousands of dead pickerel were cast ashore. This general destruction was caused by lack of air. Pelicans were not

known on the lake after this destruction of the fish, but swans still visit the lake in spring and fall.

Great blue herons and cormorants continued fairly numerous until in the summer of 1895 or 1896, when the water was so low that the bullheads died; then these birds left the lake. In the autumn of 1896, by far the greater part of the lake was a mud-flat, and there were only a few ducks found on it.

In the spring of 1897 the water again rose to an average depth of about two and one-half feet, and in that autumn nearly all kinds of ducks were again present in great numbers. An astonishing number of coots bred there or arrived in fall.

The spring of 1898 was late in coming, but there was no relapse into winter. When the lake was well clear of ice, the spring shooting season had closed, and great numbers of ducks, of different species, bred on the lake because they were not disturbed by hunters. The average depth of the water was about two and one half feet in August. On the twenty-fourth of that month I saw a flock of red-heads, mostly young, which I estimated to contain about 800 individuals. Blue-winged teal and mallards were also very numerous and there was a sprinkling of other species. The number of coots was almost incredible. Following an irregular shore fringe of rushes with a field-glass for about five miles, I estimated the number seen from one point to be about 10,000. The change in the water level was, of course, accompanied by a corresponding change in aquatic plants. In the summer of 1898

there were many square miles of water pest, *elodea*, and extensive areas of water celery, *vallisneria*. The latter is the favorite food of the red-head and the canvas-back duck. The only fish observed were numerous small minnows, wherever the weeds left enough clear water for them to swim about in.

The changes in the level of the lake were principally produced by corresponding changes in the supply of rain and snow.

The above sketch proves that a sufficient water supply will insure a sufficient food supply for aquatic birds; and if they are not hunted in spring, and not hunted too much in fall, ducks at least are likely to be numerous wherever natural conditions favor them. Geese, cranes, swans, and pelicans are so large and conspicuous that they always attract attention and are disturbed. Thus they become very wild and wary, and leave settled regions.

If large birds were not so thoughtlessly persecuted, they would become accustomed to live and breed in settled regions, so that nearly everybody would have an opportunity to observe such as Canada geese, loons, and herons in their natural environments. This is proved by the state of semi-domestication in which the white stork lives in Germany and in other countries. The bird is about as large as our great blue heron and is very conspicuously colored, but as it is not molested by the people, it builds its nest on the roofs of houses and other buildings, and hunts frogs, lizards, and snakes on the village meadows, and fishes in the

nearest streams and ponds. The peasants often place cartwheels on the gables, where the storks use them as convenient foundations for nests. The same birds have been known to return to the same house for many successive years. Not all birds can be accustomed to live near man. The black stork of Europe is still the wild bird of the fens and moors. I have several times found its nest in lonely moorland forests, where it was built on tall pines that were almost inaccessible even to an enthusiastic boy. Where the white stork built when its present range was covered by the vast, gloomy forests which Cæsar and Tacitus describe, I do not know.

Much missionary work has still to be done before we may hope to protect large, conspicuous birds. A German proverb says: "The fools never become extinct," but I hope that schools, educative societies, law, and police may in the near future practically exterminate the bird-destroying variety.¹

Although this little book is principally concerned with song birds, I cannot pass the opportunity of saying a few words on other wild creatures; — for who would like to have all the wild Indian romance hunted and driven away from our marshes and woods? A lake, where you may chance upon a stately heron, surprise a beautiful wood duck, or espy a flock of wild, honking geese, is always full of charm and virile inspiration; but what man or woman, boy or girl, is

¹ See Hatch, "Birds of Minnesota." on herons on Crane Island, in Lake Minnetonka, Minnesota.

stirred by the insipid combination of nothing but water, weeds, and ripples? In such a place you feel keenly a want of harmony, only a part of the "Each and All" is there, you encounter the painful desolation of a deserted home, and confess with a pang that you and your kindred, either by deed or by neglect, are responsible for this emptiness of nature. The wild creatures' Eden is there. The birds have never sinned against God or man. Why have we banished them to the sub-Arctic wastes?

How interesting and truly romantic is a boat trip, when you may expect a deer coming out from the thicket to drink, when you know wild-cats and bears may be listening to your voice. How stale and tame the whole journey becomes, when a six-inch pickerel is the wildest creature you may expect to view. There you cannot help thinking that for every lover of nature this world is becoming a tiresome place. Is the time rapidly approaching when English sparrows, brown rats, and cottontails will be the biggest wild creatures in the country? We read in the Holy Book that "God saw every thing that he had made, and, behold, it was very good." I fear that, unless the taste of Him Who is unchangeable has undergone a decided change, He must at this time be much disgusted with a large part of the earth He created. Man, whom He gave dominion over all, is indeed ruling the earth, but he is not ruling it like a wise, beneficent father; he is ruling it like a greedy, despotic conqueror.

It is high time that all lovers of nature wake up,

that especially all teachers and educators awake and join the forces that are now working to preserve for ourselves and our children that great and beautiful Nature whose spirit we feel in *Evangeline*, and whose very soul speaks to us from *Hiawatha*. Let us not make the inspiration of future poets impossible.

SECTION IV

PROTECTING SONG BIRDS AND ATTRACTING THEM TO OUR HOMES

CHAPTER I

BY FURNISHING THEM TREES, VINES, AND SHRUBS

What to Plant.—Species that grow wild in your vicinity are likely to thrive best and attract the greatest number of birds. None but perfectly hardy species should be selected. Just what you want will depend on your intentions and on the space and locality you have at your disposal. As it would be impossible to give detailed directions suitable for all parts of the country, I must refer those looking for more specific directions to reliable nursery men, to the Agricultural Experiment stations, to superintendents of city parks, and to the publications of the United States Forestry Division, Washington, D.C. Cottonwoods and willows are among the poorest trees for attracting birds. Nearly all prairie groves should have much more underbrush, for which almost any shade-enduring shrub, bush, or vine would answer. A grove of mixed trees attracts more birds than a grove consisting of one kind only.¹

¹ On the food of birds see *Farmers' Bulletin* No. 54. See Merriam, "Birds of Village and Field," on planting of shrubbery to protect cultivated fruit from birds. Pages xxiii-xxviii.

Source of Stock. — You might raise the plants from seeds or procure them from the woods, but in most cases it will be cheaper to buy of a reliable nursery, stating the purpose for which you wish the plants and what place and soil they are to be planted in.

Time for Planting. — The best time for planting is early in the spring, just as growth begins, but before the leaves have come out.

Planting of Evergreens. — All evergreens are very sensitive to moving. The greatest care must be taken to prevent the fine rootlets from becoming dry. They are best planted in early spring, as soon as the ground can be conveniently worked.

Watering. — If the season is dry, it may become necessary to water the young trees until their root system has well developed. Give plenty of water, if you water at all, or you will simply cause a hard crust to be formed of the surface soil.

Twiners, like hops, moonseed, and waxberry, *Celastrus scandens*, prefer poles or posts from one to three inches thick, and will not twine around supports much thicker. It is not advisable to plant them near valuable young trees, as they tend to strangle them.

When, in the lists following, one Latin name is given with the English name of a plant, the genus only is referred to ; when two Latin words follow the English name, a certain species is referred to. It was not possible or advisable in most cases to refer to a particular species, as of most genera a number of valuable species are found in the different sections of the country.



FIG. 1.—WILD YAM VINE ON SPRAY OF WILD HAW. ABOUT ONE-THIRD NATURAL SIZE.

Nursery men are likely to offer species which have been introduced from Europe or Asia, but they will generally answer just as well, provided they are hardy in the region where they are wanted. The letters N., S., M., W., mean that the respective plant is found or that the genus is represented in the North, South, Rocky Mountains, and on the Pacific Slope respectively. On the distribution of species and genera I have consulted : —

1. *Gray*, Manual of the Botany of the Northern United States. Sixth edition.
2. *Britton and Brown*, Illustrated Flora of the Northern United States and Canada.
3. *Chapman*, Flora of the Southern United States. Second edition.
4. *Coulter*, Manual of the Botany of the Rocky Mountain Region.
5. *Whitney and Watson*, Botany of California.

I believe that our native trees, shrubs, vines, and flowers should be used much more for ornamental purposes. Readers who may wish to know the more conspicuous wild flowers are referred to Mrs. Dana, "How to know the Wild Flowers," and to Parsons and Buck, "The Wild Flowers of California."

Both books are illustrated and are well adapted to the purpose they intend to serve, and show that hundreds of our wild flowers deserve a place in our parks and gardens.

Our schools in observing Bird and Arbor Day, or Nature Day, should not neglect vines, shrubs, and flowers. Your space for trees may be limited, but you can always find corners, fences, and walls for vines, shrubs, and flowers, and it is generally easier to make

these smaller plants grow. When you transfer wild plants to your lawns and gardens, do not fail to observe closely under what conditions they grow, and



FIG. 2.—FALSE BITTERSWEET. THE PALE ORANGE ARILS HAVE NOT YET OPENED. ABOUT ONE-FOURTH NATURAL SIZE.

then surround them, as far as possible, by the same conditions of light, shade, temperature, soil, and moist-

ure. A shade-loving plant will, of course, perish if planted against an exposed south front wall.

The groups in which I have arranged the woody plants that are of special interest to bird lovers need no further explanation.

a. Species with Dense Foliage and Copious Branching.

— Trees and other woody plants of this character offer good nesting places for many species; they protect the fledglings from cats, crows, and hawks, and some of them also bear fruit, which is eaten by many birds. The following are suggested:—

1. Norway Spruce and Native Spruces.
2. Scotch Pine, Austrian Pine, and Native Pines.
3. White Cedar and Red Cedar. N., S., W.
4. White Elm. N., S.
5. Wild Plums. N., S., M., W.
6. Wild Haws. *Cratægus*. N., S., M., W.
7. Mulberries.
8. Choke Cherry and other wild cherries. N., S., M., W.
9. Wild Hazel. N., S., M., W.
10. Virginia Creeper. N., S., M.
11. Wild Grape Vines. N., S., M., W.
12. Wild Clematis. N., S., M., W.
13. Green-Brier. *Smilax*. N., S., M., W.
14. False Bittersweet. *Celastrus scandens*. N., Southwest.
15. Honeysuckle. *Lonicera*. N., S., M., W.
16. Mock Orange. *Philadelphus*. Central, S., W.

17. Meadow-Sweet. *Spiræa*. N., S., M., W.
18. Citrus Trifoliata. Hedge shrub not hardy north.
19. Honey-Locust. *Gleditschia*. N., S.
20. Moonseed. *Menispermum*. N., S.

b. **Species Desirable on Account of their Fruit.**

aa. The following species produce fruit that ripens in summer or autumn, and attracts summer residents and early autumn migrants:—

1. Wild Cherries. N., S., M., W.
2. Wild Currants and Gooseberries. N., S., M., W.
3. Juneberry or Shadbush. *Amelanchier*. N., S., M., W.
4. Wild Plums. N., S., M., W.,
5. Snowberry. *Symphoricarpus*. N., S., M., W.
6. Dogwood. *Cornus*. N., S., M., W.
7. Hackberry. *Celtis*. N., S., M.
8. Elder. *Sambucus*. N., S., M., W.
9. Viburnum. N., S., M., W.
10. Mountain Ash.

bb. The following species produce fruit that ripens late in autumn, remains on the twigs into or through the winter, and attracts late migrants, winter residents, and migrants on their northward journey in spring.

1. Hackberry. *Celtis*. N., S., M.
2. Mountain Ash. *Sorbus*. N., M., W.
3. Red Cedar. *Juniperus*. N., S., M., W.
4. Wild Haws. *Cratægus*. N., S., M., W.
5. False Bittersweet. *Celastrus scandens*. N., Southwest.

6. Burning-bush, or Wahoo. *Euonymus*. L., N., S., M., W.
7. Wild Rose. N., S., M., W.
8. Moonseed. *Menispermum*. N., S.
9. Virginia Creeper. N., S., M.
10. Green-Brier. *Smilax*. N., S., M., W.
11. Box-Elder. Female trees. N., S., M., W.



FIG. 3.—BURNING-BUSH. A SPRAY WITH FRUIT AS SEEN IN EARLY AUTUMN. ABOUT ONE-HALF NATURAL SIZE.

12. Sumach. N., S., M., W.
13. Holly. *Ilex*. N., S.
14. Wild Crab Apple. *Malus*. N., S.

c. The Following Species Offer Both Fruit and Dense Foliage:—

1. Honeysuckle. *Lonicera*. N., S., M., W.
2. Chokecherry. N., S., M., W.

3. Wild Plum. N., S., M., W.
4. Wild Currant. N., S., M., W.
5. Wild Grape Vines. N., S., M., W.
6. Virginia Creeper. N., S., M., W.
7. Elder. *Sambucus*. N., S., M., W.



FIG. 4.—MOONSEED TWINING ON A YOUNG WILLOW. ABOUT ONE-EIGHTH NATURAL SIZE.

8. Wild Gooseberries. Species with smooth fruit. N., S., M., W.

Flowers for Hummingbirds.—These little gems of sunshine are a unique feature of American birddom. In the summer of 1898 they were particularly numer-

ous on the farms, in the towns and parks of southeastern Minnesota, and I also found them in the wild northeast corner of the state, where they flitted about among fireweeds and raspberries of the North Shore. While they are specially attracted by long-tubed flowers, they seem to visit nearly all flowers. The gladiolus is one of their favorite flowers; a bed of them was almost the home of several that I observed last summer. I would therefore suggest that these beautiful, showy flowers be not omitted from gardens where hummingbirds are wanted. The little creatures, as far as I know, do not suffer from cats and are not encroached upon by the English sparrow, although I have seen a sparrow shoot at one in midair, probably mistaking it for a large insect.

General Suggestions on Tree Planting for Birds. — In the numberless groves which now adorn our prairie states, birds are generally numerous and conspicuous during spring and early summer, May and June in this region, but in July, when the dry season begins and when berries begin to ripen in the woods and copses, they disappear, as if suddenly spirited away. Plant some of the species referred to under and around your groves of box-elder, cottonwood, soft maple, and willows, and provide the birds with one or more bathing and drinking fountains and many will stay in your groves all summer.

On city lots, shrubs and vines should be placed along fences, and in unsightly corners; they will beautify your property and attract the birds.

Managers of parks and of large private properties

can attract hosts of birds if they have the matter brought to their attention. They generally employ skilled horticulturists, and they can have no difficulty in deciding what to plant. An interesting incident is told by Dr. W. Kobelt, of the Botanical Garden at Giessen, Germany: "Two ponds were separated by a dam, which served as a walk. This dam was cut out at both ends, thus making an island, which, during the summer time, was inaccessible to cats and bad boys. A few trees were already growing on the dam and all kinds of shrubs and vines, and a few conifers were planted in addition. A few large rocks and a pile of brush for wrens were also added and the bird island was left to itself and to the birds. It was not found necessary to advertise the island in the papers or to put up signs with "Nesting Places for Rent." The very first spring the islet was crowded with nests, and from the island the birds populated the neighboring gardens. Every kind of bird that nests at all in the vicinity of Giessen and in such places was found on this island."

This incident shows how quickly the birds will make use of suitable nesting places. As most of our larger cities have parks with lakes and ponds in them, many of them could maintain such islands without any extra expense. The main point for consideration is that such islands furnish absolute protection against cats. The nests cannot be molested, nor can the young birds be destroyed while they hop about on the ground or sit on low bushes, unable to rise to higher and safer perches.

Let us have bird islands wherever conditions make it possible!

Almost every farmer and land owner possesses small areas which cannot be utilized for agricultural purposes. Plant these waste places with shrubs, trees, and vines suitable to the locality. Summer birds will nest in these isolated woods, and migrants and winter residents will gladly resort to them for food and protection. I have known a large flock of quails to make their home in a copse of small trees, shrubs, and dead flower stalks and grasses. This natural shelter extended a few hundred yards along a meandering prairie stream in Minnesota. The quails could not be driven out of it. If you want a place where your boy may hunt rabbits, he will find them in such waste-land shelter.

Rural Schools and Nature.—If the windows and doors of many country schoolhouses did not so much suggest the structure in which the worthy Ichabod Crane officiated, a stranger would undoubtedly mistake these corner shanties for township jails or some kind of penal sheds or almshouses. The dilapidated appearance of the jail and its desolate surroundings he might interpret as intended to accentuate the punishment of the culprit or to symbolize the lack of beauty and harmony in his mind and morals. I cannot imagine that, without seeing the children, the teacher, or the school furniture, he could possibly hit upon the idea that these are the places where wealthy, intelligent, and practical communities compel their children to spend one-fifth of the waking hours of their youth, and that they would

select such desolate shacks in which to teach the growing generation to appreciate and admire the beautiful. As long as so little is done to make country life pleasant, the boys and girls do right to leave the farms.



FIG. 5.—TWIGS OF BURNING-BUSH IN FRUIT AND RED CEDAR. FROM A WATER COLOR BY H. GIEHLER. ABOUT ONE-THIRD NATURAL SIZE.

Every person who is interested in making rural life and rural schools what they ought to be should send for : Bulletin 160, "Hints on Rural School Grounds." By L. H. Bailey, Cornell University, Agricultural Ex-

periment Station, Ithaca, N. Y. It is sent free to applicants.

The bulletin is finely illustrated and gives explicit directions for planting trees, shrubbery, and flowers on school grounds. The suggestions given there can also be applied to rural homes, city homes, and city schools. If you follow out Professor Bailey's ideas, you will soon have trees, shrubs, flowers, *and birds* near your homes and schools, and they will become the beauty spots of the country.¹

¹ See an article on "School Gardens" in Appleton's *Popular Science Monthly*, February, 1898. Write to Agricultural Experiment Station, Fort Collins, Col., for "Notes on Birds of Colorado;" to Agricultural Experiment Station, Orono, Maine, for two pamphlets, "Ornamenting Home Grounds" and "Ornamental Plants for Maine;" to Agricultural Experiment Station, Lincoln, Neb., for "Ornamental Planting" and "Methods of Tree Planting;" to U. S. Department of Agriculture, Washington, D. C., for "Forestry for Farmers." See also "The Winter Food of Chickadees" and "The Feeding Habits of the Chipping Sparrow," by Clarence M. Weed, Agricultural Experiment Station, Durham, N. H.

CHAPTER II

PROVIDE NESTING BOXES, AND DO NOT CUT DOWN EVERY HOLLOW TREE

General Directions. — The best way to attract those birds that breed in hollow trees and in other cavities, is to allow old hollow trees to remain. Should a dead tree disfigure your place, plant wild grape vine, Virginia creeper, or some other suitable climbing vine near it; the vines will soon cover it, you keep the birds, and they are not compelled to go house hunting, which they like no better than men.

Where no hollow trees and posts exist, we must help out by nesting boxes. Set your boys and girls to make these boxes and I must be much mistaken, if such work will not make them real and enthusiastic bird protectors. In most cases it will however be necessary that an older person direct the work and assist in it. By far the best material for bird boxes are sections of hollow trunks and limbs, having a cavity from 3 to 8 inches in diameter. Boards and slabs with the bark are almost as good. Where such material is not obtainable, use rough-sawed, weathered, one-inch boards. Bird boxes should not be made of new boards and should generally not be planed and painted. If you

have to take newly sawed lumber, rub the boards with moist earth. Limbs and trunks may, of course, be bored out, or they may be ripped first, then a cavity cut out, and the two halves screwed together again, but these boxes are likely to open along the joints unless very carefully made. Do not nail false bark on the boxes; it is never quite tight and only harbors bird parasites. It is, however, advisable to fasten the bark on summer cut wood with small nails. On wood that was cut in late autumn or in winter, the bark adheres naturally. The wood of rough-barked deciduous trees is best for bird boxes, but any kind of wood may be used.

The width of the entrance hole, the location of the box, and its height from the ground must receive careful attention. Birds do not like to approach their nests over wide open spaces. The old nesting material should not be removed from the boxes, the birds will attend to that themselves. The boxes must not be exposed to the noon and afternoon sun, and small openings should be left between top and cover to secure ventilation.

It is absolutely necessary to fasten the boxes well. If they are shaky and are rattled by the wind, or if branches and twigs strike against them, the birds will not use them. The fastening may be done by means of strong wires, nails, or screws, the method depending somewhat on the value of the tree to which the box is to be fastened.

Some of the best European observers advocate surrounding the boxes of titmice and wrens with thorns.

Twigs of our wild haws and plums will answer this purpose. They should be securely nailed, screwed, or otherwise fastened so as to protect the entrance holes against cats, crows, squirrels, jays, and shrikes. It would pay to find by experiment how our titmice, bluebirds, wrens, and nuthatches take to boxes thus protected.

A pair of house wrens nested for several years in a box which I had nailed to a thin, peeled pole, about 12 feet from the ground and placed near young trees about 20 feet high. The pole was too thin and too smooth for the cats.

Another good way to protect the boxes from cats is to surround the tree about 5 feet from the ground, or just below the branches, with several coils of some kind of barbed wire about 2 feet wide. The closer the barbs are placed, the more effective is the protection. Take two narrow pieces of board or lath, tack them, one above the other, to the tree by their upper ends; then nail the end of the barbed wire to the tree with a steeple tack. Wind the wire around the tree and boards as shown in the figure, and fasten the lower end of the wire to the last coils. Next fasten the barbed wire coil to the lower branches by means of a smooth wire, then draw the nail holding the laths and pull out the laths. In this way we procure elastic barb wire coils, which may remain on the tree for a number of years without hindering its growth.

The entrance holes should be turned away from the

prevailing rain storms. On buildings, the east side is the most desirable, but the north side will also do, if protected by an overhanging roof. The south and

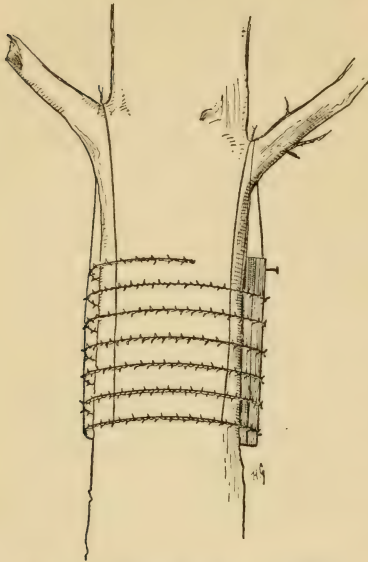


FIG. 6.—TREE TRUNK WITH BARB WIRE COILS.

west sides are likely to be too hot unless they are shaded. No box will be occupied that is readily accessible to cats.

Special Directions.—Measurements are given in inches unless otherwise stated.

1. *Titmice, Chickadees, and Wrens.*—Inside measurement of box about $7 \times 5 \times 5$, place it against out-buildings or on trunks and limbs of trees from 6 to 12 feet high. Size of entrance about $1\frac{1}{4}$ inches

in the middle of the board, a little widened both toward the inside and the outside. Nail a little last $\frac{1}{2}$ an inch below the entrance. If the hole is too large the English sparrows will move in, if too small you are likely to have wasps or bees as your renters. The birds referred to will not nest near the gathering places of English sparrows. I have observed the house wren build in a box that had the entrance in one of the lower corners with

the bottom board projecting a few inches and forming a platform.

2. *Nuthatches and Creepers*. — Inside measure of box about $20 \times 6 \times 6$, place it on trees from 12 to 25 feet above the ground, rough inside and outside, no perch on the outside, entrance from $1\frac{1}{2}$ to 2 inches in diameter.

3. *Woodpeckers*. — Quite a few of these birds are likely to avail themselves of nesting boxes, if made of hollow trunks and limbs or of wood with the natural bark on it. The boxes may be from $10 \times 5 \times 5$ to $36 \times 7 \times 7$ inside measure, the entrance from 2 to 4 inches in diameter. Place the boxes on trees from 10 to 25 feet high, supply no perches and no thorns. I have found the flicker's nest 4 feet from the ground in an old cottonwood tree, in a cavity only about a foot deep; and with an entrance large enough for any man's fist. This nest was in a prairie grove, where the cottonwood was the only hollow tree. A pair of red-headed woodpeckers once built their nest in a telegraph pole on a much-frequented street in St. Paul, Minn. The children from one of the public schools passed there every day. Some boys climbed to the entrance repeatedly, but the nest was too deep to be reached, and in due time the young appeared on the neighboring house-tops. The best way to attract woodpeckers is to spare old and hollow trees.

4. *Bluebirds*. — Boxes of about $10 \times 6 \times 6$ inside measure, fastened to trees or posts near shrubs and brush, from 6 to 15 feet above the ground, entrance from 2 to $2\frac{1}{2}$ inches in diameter. Mr. J. W. Taylor of

St. Paul, Minn., has had bluebirds nesting in boxes, which he had painted a dark green so as to harmonize with the foliage of oaks.

5. *Flycatchers*. — Those that live near dwellings frequently build on the window caps, if they are protected by an overhanging roof. The favorite nesting places for the phœbe are the beams of bridges. The boys can do the birds a favor by nailing strips of laths or pieces of boards horizontally to the beams. A little shelf thus constructed under a projecting roof is also readily used. Near the nest must be a convenient perch from where the birds can watch for flying insects, which they can do from wires, posts, dead branches, and small dead trees.

6. *Swallows*. — Nail bracket shelves to any convenient beams and rafters in machine sheds, corn-bins, hay-lofts, and barns. The boards used may be from two to four inches wide. Sheltered places on the outside of buildings are also good; out-buildings should have openings for the birds.

7. *The Purple Martin*. — This bird will nest in almost any box of the right size in the right place, it will even use boxes of planed and painted boards. The inside measure should be about $10 \times 8 \times 8$, the entrance about $2\frac{1}{2}$ inches in diameter near the top and should have no perches. They seem to like a martin house consisting of several apartments. The house may be fixed on a stout post or on the top of a building.

8. *The Small Owls*. — The barn owl, long-eared owl, barred owl, short-eared owl, and screech owl are bene-

ficial and should be protected. If farm buildings have sufficiently large openings, the barn owl will enter and look after the mice. I suggest that experiments be made with nesting boxes for them. The boxes should vary in size from $16 \times 12 \times 12$ to $18 \times 14 \times 14$. Use some with large side opening and leave the others entirely open at the top and observe the results. The boxes should be fastened in crotches of trees. Bore a few small holes into the bottom of the open boxes, so that rain water will not accumulate in them.

9. *The Wood Duck.*—This most beautiful and interesting of all ducks has much decreased in Minnesota, and no doubt in all settled districts. Even where the lakes still ripple and plash in the June breeze, its natural homes, the old and hollow trees, are gone. The farmers have cut them for fuel, or some individual, who styles himself hunter or trapper, has burned and cut the hoary sires of the primeval forest, because a poor squirrel, or a cottontail, or even a coon had taken refuge in them.

Boxes having the natural bark on them, will undoubtedly attract the wood duck. Make the boxes about $24 \times 16 \times 16$ to $36 \times 18 \times 18$. They may be provided with side openings of 4 to 5 inches diameter, or the top may be left open. According to Masefield, an English writer, such boxes have long been used in Lapland. Place the boxes on trees in well-wooded places near rivers and lakes. Wood ducks frequently build in convenient crotches and on stumps. I would, therefore, suggest that some very shallow boxes be also used.

The so-called ox-bows, or old river channel, are the favorite waters of the wood duck.

Concluding Remarks.—I hope that my readers, especially our boys and girls, will experiment with nesting boxes for birds, so that we soon may have more definite knowledge on the subject. The pleasure derived from such work is a rich reward for it.

Every bird lover should make good use of his experiences. Some birds, like our purple martin and the European starling, have become accustomed to use nesting boxes, but most of our native birds have yet to learn to live in the "white man's houses." We must, therefore, not lose patience if our boxes are not at once occupied, but must continue to observe and experiment.

Magazines like *Bird Lore*, *The Auk*, and others will be glad to publish the experience of bird lovers. I have consulted the following publications and refer my readers to them:—

1. *Masefield*, Wild Bird Protection and Nesting Boxes, Taylor Bros., Leeds, England.
2. *Liebe*, Nistkästen für Vögel. Theo. Hoffmann, Gera, Germany, One of the best treatises on the subject.
3. *Kobelt*, Schutz den Vögeln. Bechtold & Co., Wiesbaden, Germany.
4. *Voigt*, Unsere nützlichen Gartenvögel. Theo. Voigt, Gernrode am Harz, Germany.
5. *L. H. Bailey*, The Birds and I. College of Agriculture, Cornell University, Ithaca, N. Y.

The first costs about 50c., the other three are pamphlets which can be had for about 15c. each. No. 5 is

very good for boys and girls, because it contains numerous drawings of nesting boxes. It is sent free to applicants.

I shall be very glad to receive suggestions and criticism from those who experiment with nesting boxes.

CHAPTER III

PROVIDE DRINKING AND BATHING FOUNTAINS

IT seems that the question of water supply has received little attention in the study of birds. The sudden disappearance of birds from our Western prairie groves in July has already been referred to. I have observed several species of birds eagerly drinking the water that had leaked through the cattle trough; a yellow warbler was seen to drink out of a cup placed on the top of a pump, and in one very dry summer a great bittern looking for water came to a pump only a few feet from the farmhouse. During the same part of the summer all kinds of birds were abundant in the small prairie town of Litchfield, Minn., where the conditions for nesting, roosting, food, and shelter were not better than on the farms; but the town has water-works, lawns and gardens were freely sprinkled and I often observed the birds drinking on the lawns, spluttering in the pools, or taking shower baths in the spray.

One December day I came upon a chickadee that had just taken a bath in a stream, when the temperature of the air was about 25° F. The stream was covered with ice and snow, except where a swift current had kept it open. At another time, when the temperature of the air was zero or below, I saw a number of house spar-

rows drink from an open spring. During the cold weather of February, 1899, a flock of evening grosbeaks remained for weeks near an open place of the Minnesota River. I saw the birds feed on the box-elder seeds several times, but never saw them drink. On March 4th, 1899, I saw through the window about eight feet from the point of observation, a small flock of those birds eat the wet, thawing snow in a sunny corner on the roof of my house. This was about 8:30 in the morning, when the snow on the ground was not at all thawing. The nearest open water was about two miles away. Frequently I have observed house sparrows bathing in snow water whose temperature was just above freezing.

All animals must have water, unless they find enough of it in their food. Flesh-eating and insect-eating birds may find enough of it in their food, seed-eaters may fly some distance to find it or they may strip the dew off the grass; in the winter, they drink at springs or at other open places, or eat snow, but there can be little doubt that they prefer water to snow.

Construction of the Bathing and Drinking Basin. — The best bathing and drinking place is a bank of sand or gravel to which the water is supplied by a spring or running stream. It should have a sloping bottom, making the water from $\frac{1}{4}$ to 3 inches deep. It should be close to shrubs and trees, thus affording ready shelter against birds of prey, but there should be no hiding place for cats near by.

Where such natural basins cannot be furnished, dis-

tribute a number of large flower pot saucers in the garden and in the groves. No bird basin should be glazed. If you wish a larger basin, construct one of wood or of corrugated tin about 2 × 3 feet, and 3 inches deep in the middle. Nail thin laths to the inside of the wooden basin about 2 inches apart. Stand these basins in a suitable excavation, or place a stone or small block of wood under each corner to make them stand firm, or a small support may be fixed below each corner. The water in such saucers and basins should be renewed every evening about sunset or early in the morning. From time to time they must be thoroughly cleaned. Boys and girls have plenty of time to attend to these basins, which in dry weather should be set out as soon as the birds arrive in spring. This is as necessary in cities as in the country, because we often have several weeks of dry weather during which the birds arrive and when lawn sprinklers are not yet used.

A German writer, Otto Voigt, recommends floating basins for tanks, ponds, large park basins, and streams that offer no suitable sand or gravel banks. Such a floating basin is constructed of willow, roots, or twigs; its margin projects above the water and the depth of the water is regulated by cork or wood floats attached so as to make it from 1 to 3 inches deep. Common plasterers' laths or old wash baskets will serve well for the construction of such floating basins. They should be anchored near protecting trees or shrubs. From time to time they must be cleaned of slime and algæ. Artificial bird basins cannot be well used in very

severe winter weather, but the natural basins will certainly prove a great attraction for winter birds as well as for summer residents. The common iron or

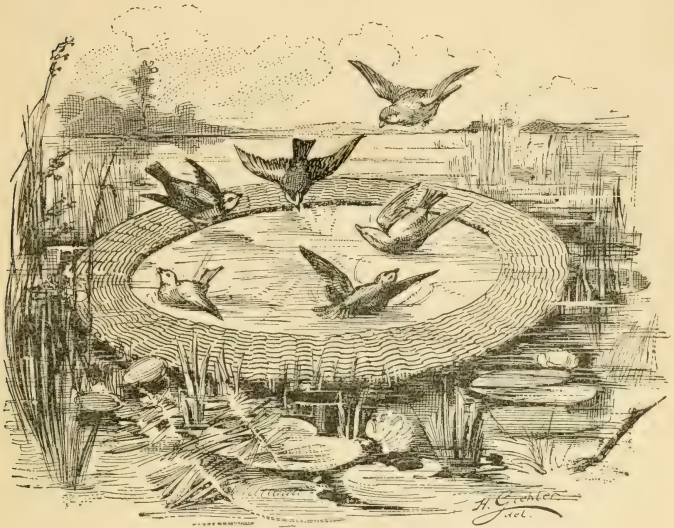


FIG. 7.—A FLOATING BIRD BASIN.

cement fountains and basins found in gardens and parks attract but few birds, because their sides are generally steep and slippery, and the water is too deep.

CHAPTER IV

FEEDING BIRDS IN WINTER AND IN UNFAVORABLE WEATHER AT OTHER SEASONS

THE greater part of this chapter has been kindly contributed by Mrs. Elizabeth B. Davenport of Brattleboro, Vt., who has had much experience in feeding birds. I hope that especially many boys and girls will follow her precept and example.

“The first thing in feeding birds is to consider the environment, and consequently what species are to be first invited. My surroundings are an apple orchard, with groves of conifers not far off, and much lawn and garden space. But we are only a hundred feet or so from a main street in a closely settled village.

“I put split bones in which the marrow is accessible and other bones with some suet upon the apple tree boughs, and also nailed large pieces of suet upon perpendicular trunks. Chickadees, nuthatches, and downy woodpeckers found them almost immediately. A box open only on one side, and the closed side turned toward the prevailing wind was fastened to the trunk of a tree some twenty-five feet from the house. An additional board on the top projected several inches to give still further protection. In this box I put cracked corn and broken bread. A shelf at a near-by window

contained suet and hemp seed, and a basket hung from another window contained only hemp seed. It was but a question of a few weeks before the above named birds came as freely to the windows as to the trees, and the blue jays were added to the flock. The following summer I kept the suet replenished constantly, and such of these birds as nested in the vicinity first carried it away to their mates and young, and then brought the little broods for nearer feeding. I think the first nest bird was the purple finch, which came early one March, evidently attracted by the presence of those already feeding. I value him greatly as a decoy, for he comes so early and remains till November, is here in great numbers and so continuously that other birds follow him, and so I have many migrants which would otherwise not be called in. During the season of migration I keep hemp seed and seeds of maple and ash scattered at some distance from the house, to lure the stragglers to drop down. If we have a crust on the snow in winter, I take advantage of this also.

“In the winter when my flock was largest it numbered, besides those already mentioned, the hairy woodpecker, the American creeper, the pine siskins, redpolls, pine grosbeaks and slate-colored juncoes. Under stress of weather, a crow and a screech owl also came down, and over forty tree sparrows formed a part of the flock from November till April. As the winter passed and the migrants came, the white-throated and white-crowned sparrows, and fox sparrows, juncoes, and red-breasted nuthatches stopped by the way, and

then summer residents reënforced the ranks thinned by the onward passage of the migrants. Both quail and ruffed grouse have come to feed in places where food has been placed for them in suitable places by other residents of this town. What I have just related refers to the winter of 1895 and 1896, before the English sparrow invaded my premises. Since that time the birds have decreased in number, but not in species, because of necessarily changed conditions, for I have been obliged to deal with that disconcerting factor in some measure ever since the above date.

“I will not particularize the different food for different birds, but say generally, those living largely upon larvæ of insects all take the suet. The pine grosbeaks would never eat anything but seeds of maple and ash, often digging them from the frozen ground. The purple finches preferred to everything else the hemp seed; next, the sunflower seed.¹ The other seed-eaters will take corn, suet, nuts, and bread. In the summer much soaked bread is carried and fed to young, and the robins and orioles, song sparrows, and chipping sparrows are fond of it. Wheat bread grows so hard when frozen that in winter I use bread made of two-thirds corn meal and one-third wheat. This crumbles so fine that freezing makes less difference. But all prefer the wheat bread.

“When we have a thaw in winter my flock disperses

¹ I have observed large flocks of purple finches feed on the seeds of burdock in spring. The birds picked the seeds from the ground and stayed from one to two weeks in the same locality. — [AUTHOR.]

or becomes smaller, but previous to a storm and in stress of weather the birds are about continually. I began this work from love of the companionship of these feathered friends, but the opportunities for study are more than one would think at first. All the personality and individuality of the birds are marked, and through having them at this short range, their manner of handling food, changes of plumage, the bearing of one species to other species, and of individuals of the same species to each other, open up many lines of inquiry. After once learning to take food provided for them, the birds will come anywhere for it, to windows on upper stories, to windows under deep piazzas, or into the house, if offered near the windows. They sit by the half hour, if their kind permit, on the baskets or boxes, and never with an expectant eye indoors from fear. They literally take possession of the places provided, and make you feel an intruder if you interfere with their wishes.

“Of the experiences with individual birds which grew to be on really companionable terms with us I cannot write, but there are memories among them not to be forgotten. That the same individuals among the migrants often return, I could demonstrate if space permitted.

“Should one care to get on specially familiar terms with the birds fed, I would suggest feeding at regular intervals of time, which they would soon recognize. It has always been my custom to have food in abundance out at night for the early comers; but when a

snow storm had covered it, I always went out early, just at dawn, and found that the tree sparrows, always the earliest risers, would know me almost immediately, and come up through the orchard. It was a beautiful sight as they flitted leisurely from tree to tree, nearer and nearer, with gentle call notes, dropping down one by one at first, then more and more rapidly, till the whole flock were close about my feet. This was the only time in the day when they fed quietly. The first edge of hunger off, and it was a panorama of flashing wings pursuing and pursued, and all the time their musical notes of protest and aggression filling the air, for they are birds who have no notes but those of music. In February, at sunrise, they would begin to sing softly; by the middle of March the orchard was jubilant.

“As I write, a pair of nuthatches are at the window, softly talking to each other; chickadees come and go, carrying the hemp seeds to the apple boughs, where they deftly manipulate them with their toes while they quickly penetrate the husk and take out the living germ, much more quickly than I can write of it; the tree sparrows are rolling these same hemp seeds between tongue and bill till the husk falls, opening by its suture; and a hairy woodpecker within four feet of me is striking vigorous blows at the suet near by.

“And now for that vexed question of the English sparrow! As one lad put it, ‘What do you do, Mrs. Davenport, when the English sparrow gets mixed in?’ Let me preface my own experience with this intruder by an observation. This bird is especially addicted to

locality; a flock feeding over certain circumscribed territory, and rarely beyond it, but breaking up into detachments and moving on, only when the original flock has grown too large for the food there to be obtained. In cities, I have known one flock to frequent the back yards of a block, and never mix with that on the other side of the block. A friend here has a large, annoying flock in the grounds in front of her house, yet feeds the birds at the back a few hundred feet away, and on the south side, and yet not one English sparrow has troubled her. Should they by accident discover her food, I think her battle will be imminent. It was a number of years before they discovered me. At first I kept them away by persistent driving. I would whip the trees and send them all away, out of the orchard. After a week or two, that answered for the season, unless a hard storm came on. But I made a business of it, did not drive one day or one hour and then relax my vigilance, but kept up a continuous warfare. Unfortunately my neighbors on either side permitted them to nest on their premises, and my troubles became multiplied many times. The winter following I made a compromise with them, — I kept cracked corn at some distance from the windows in boxes on the trees and on the ground. In the spring I could not keep anything on the ground for the migrants; it was devoured immediately, and I saw that I must either dispose of the sparrows or curtail my feeding area and so lessen my flock. I chose the latter, and brought the food to the windows and there watched it, not letting

even one sparrow alight, and always driving them from the trees when I could. For two years this has worked well, but what any season may bring forth, I cannot tell. I find, too, that suet put on the under side of boughs which incline about forty-five degrees, providing the bough be a good-sized one, is safe from this bird, while any other can easily get it.

“One of my friends shot two last spring, and the flock left till this winter. Then she shot a third, and they have not returned.

“Pans of water for bathing and drinking are always near the house, and I cannot advocate too strongly their use to the bird lover. I use dripping-pans painted inside and outside to protect them from rust. They are about the right depth. To these I owe a glimpse of many a rare warbler, and I think many a bird comes to them first and then follows the other feeding birds. I might fill a small book with the beautiful and interesting sights common there. The birds bathe even after the water freezes at night. In the fall I have counted over fifty robins within three hours, enjoying to the full this chance for a bath, and that as I would come and go by the windows. There is one more discordant note to be struck — the cat, and worst of all, the neighbor’s cat. The tramp cat might be and should be eliminated. I think if we could have a license law for cats as well as for dogs, this nuisance could be much abated, but the neighbor’s cat must be respected even if he does commit depredations. One friend prevailed on his neighbors to bell their cats, and so the birds had

some warning. But to draw birds about the low windows, where they soon grow so unsuspecting and so occupied with feeding and each other, is to draw them into a sure trap unless protection is offered. A high woven wire can enclose a space about the windows effectively. No amount of vigilance will outwit a cat. Early and late I find them lying in hiding, and they will spring upon the window-sill and take off a bird, if they can only approach close to the edge of the house.

“In this as in all other things, the measure of success will depend upon the attention given to it, and how much of one’s real self goes into it. Cared for to-day and neglected to-morrow, failure will follow. Food may be furnished and birds be present, and little joy flow to the giver. But with a heart filled with a love for the life all about one and a desire to solve such questions as spontaneously accompany nature work, I know of no other pursuit that brings richer rewards. There is no side of our character which will not grow finer, more tender, more reverent from the effort at a closer living to nature’s heart, a sympathetic study of her work all about us.”

Mrs. Davenport’s description refers to feeding birds in gardens and on lawns in a small town, and the following species have been identified by her in and near her orchard:—

- | | |
|--------------------------|-----------------------------|
| 300. Ruffed Grouse. | 360. American Sparrow-Hawk. |
| 332. Sharp-shinned Hawk. | 373. Screech Owl. |
| 333. Cooper’s Hawk. | 387. Yellow-billed Cuckoo. |

- | | |
|--------------------------------------|---|
| 388. Black-billed Cuckoo. | 587. Towhee. |
| 393. Hairy Woodpecker. | 595. Rose-breasted Grosbeak. |
| 394. Downy Woodpecker. | 598. Indigo Bunting. |
| 402. Yellow-bellied Sapsucker. | 608. Scarlet Tanager. |
| 412. Flicker. | 611. Purple Martin. |
| 417. Whippoorwill. | 619. Cedar Waxwing. |
| 420. Nighthawk. | 621. Northern Shrike. |
| 423. Chimney Swift. | 624. Red-eyed Vireo. |
| 428. Ruby-throated Hum-
mingbird. | 627. Warbling Vireo. |
| 444. Kingbird. | 628. Yellow-throated Vireo. |
| 456. Phœbe. | 629. Blue-headed Vireo. |
| 461. Wood Pewee. | 636. Black and White Warbler. |
| 467. Least Flycatcher. | 645. Nashville Warbler. |
| 477. Blue Jay. | 646. Orange-crowned Warbler. |
| 488. American Crow. | 648. Parula Warbler. |
| 495. Cowbird. | 652. Yellow Warbler. |
| 507. Baltimore Oriole. | 655. Myrtle Warbler. |
| 509. Rusty Blackbird. | 657. Magnolia Warbler. |
| 511. Purple Grackle. | 659. Chestnut-sided Warbler. |
| 511 <i>b</i> . Bronzed Grackle. | 661. Black-poll Warbler. |
| 515. Pine Grosbeak. | 662. Blackburnian Warbler. |
| 517. Purple Finch. | 667. Black-throated Green War-
bler. |
| 521. American Crossbill. | 672. Palm Warbler. |
| 528. Redpoll. | 674. Oven-bird. |
| 529. American Goldfinch. | 675. Water Thrush. |
| 533. Pine Siskin. | 681. Maryland Yellow-throat. |
| 540. Vesper Sparrow. | 685. Wilson's Warbler. |
| 554. White-crowned Sparrow. | 687. American Redstart. |
| 558. White-throated Sparrow. | 704. Catbird. |
| 559. Tree Sparrow. | 705. Brown Thrasher. |
| 560. Chipping Sparrow. | 721. House Wren. |
| 567. Slate-colored Junco. | 726. Brown Creeper. |
| 581. Song Sparrow. | 727. White-breasted Nuthatch. |
| 585. Fox Sparrow. | 728. Red-breasted Nuthatch. |

- | | |
|------------------------------|----------------------------|
| 735. Chickadee. | 756. Wilson's Thrush. |
| 748. Golden-crowned Kinglet. | 758a. Olive-backed Thrush. |
| 749. Ruby-crowned Kinglet. | 761. American Robin. |
| 755. Wood Thrush. | 766. Bluebird. |

The numbers refer to the second edition of the Check-List of North American Birds published by the American Ornithologists' Union.

The only frequent winter visitors I have in St. Paul, on a somewhat crowded residence street, are chickadees, downy woodpeckers, nuthatches, blue jays, and English sparrows. A few days ago, however, a flock of evening grosbeaks ate the seeds on the only seed-bearing box-elder I have on the lot. The number of birds you can attract is largely governed by the locality and surroundings. In the middle and southern states regular feeding will probably attract a greater number of species than can be attracted in the northern states and in Canada. The best feeding places are those that have several bird roads leading to them. Fringes of brush and timber along streams and lakes, street trees, and hedges are such bird roads. Feeding places should not be disturbed by cats, dogs, noise of factories, etc. A uniform, continuous noise disturbs the birds less than an intermittent noise, and people passing at some distance annoy them much less than people stopping. In the autumn collect the heads of cultivated and wild sunflowers, just before the seed begins to drop, also collect hemp and ragweeds, the seeds of maple, ash, box-elder, birches, and other trees. The stalks of sunflowers, hemp, and other plants stuck

into the snow are eagerly sought by the birds and afford much pleasure to the observer. All seeds collected in the autumn must be stored in some place where mice and rats cannot get at them, or not a kernel will be left. Weeds of all kinds must not be collected too late, or the birds will have eaten the seeds that have not dropped to the ground. Pieces of fat and suet nailed to boughs should not be too large, otherwise the birds will grease their wings with them in warm weather and with greased wings they cannot fly well. No salted meat should be fed. If your children do not know what to do on a long winter evening, let them make strings of the seeds of cucumbers, melons, squash, and pumpkins. Throw these strings into the trees and watch the fun, when the birds discover them.

Another interesting device for feeding and observing birds can be arranged as follows: Fasten a small evergreen or a branch of some other tree near a convenient window, preferably in the second story, as that is safe from cats. Tie bits of raw, unsalted meat, suet, split walnuts, and other nuts to your tree. If you bore a hole into the shell, the split nut can be firmly suspended by a string. After the kernel has been eaten out, the shell may be filled with suet. On such trees and branches chickadees and other birds will give pretty gymnastic performances. Nearly all seed-eating birds are fond of greens. They eat young herbs and tender young grass just like the domestic chickens. I have seen the slate-colored juncos feast on a pasture of very young knotgrass or doorweed, *Polygonum aviculare*,



FIG. 8. — THE BIRDS' CHRISTMAS TREE.

and in early spring I have seen the English sparrows feed on the first grass that was uncovered by the melting of the snow. If you children wish to prepare a special Christmas treat for the birds, sow some grain or grass in boxes in late autumn. Chop the young grass or grain quite fine, place it in the usual feeding place, and see how the birds like it. It may be that some of them will also eat chopped cabbage and kale.

If you feed the birds at all, be sure you do not forget them in sudden and severe snow storms. They must sleep on trees or in holes, while you are tucked away in your warm bed. The cold makes them very hungry, but often all their food is covered up and they cannot fly to other regions while the storm lasts. Birds do not easily die of cold alone, but they starve in a very short time. Sometimes the trees, the weeds, and the ground become coated with ice. Such weather makes a skating-park of the whole town, but it means starvation to many birds unless you feed them.

SPECIAL FEEDING-PLACES FOR DIFFERENT GROUPS OF BIRDS

1. Elevated Boards. — Nail lasts around the edge of a board of convenient size, then nail the board horizontally to some suitable branches. Feed seeds of sunflower, pumpkin, hemp, timothy, seed from the hay loft, bits of cracked nuts, mast, bits of cooked or raw meat not too salt, suet, etc.

2. Field Places. — The food is placed on the ground.

The location should be near some trees or timber. Place several rows of poles in the ground radiating from the feeding place. Tie a few weeds, sunflower heads, thistle heads, a loose handful of hay or straw to the poles. These poles serve as finger posts to the birds. Feed seed from the hay loft, waste and small grain, cracked corn, etc.

3. **Carrion Places.** — A German writer, K. T. Liebe, advises that spoiled meat, entrails, butchers' offal, and any kind of dead animal be placed on the ground on open heights at considerable distances from farms, houses, and villages. According to numerous reports such food has served to protect partridges and small birds from the depredations of hawks, crows, ravens, jays, and magpies. It has also offered good opportunities for decimating species that had become too numerous and for procuring rare specimens. Having made no observations on this point, I do not venture to say what benefit or injury may result, but should be very glad to hear from those who may try this plan.

4. **Feeding Prairie-Chickens, Ruffed Grouse or Partridge, and Quail.** — In severe winters with heavy snowfall, quail and grouse sometimes die by the hundred, especially in the prairie states. Quails, if not molested, become very tame, and a good place to feed them is under the corn bin or under some similar shelter, where no cat can spring upon them. I have seen large flocks of them under the corn bin near a farmhouse. Prairie-chickens are much wilder. They will naturally come to a place where some shocks of

corn, cornstalks, or uncut corn are left on the field. If the place is sheltered from prevailing winds and near some brush and timber, it will prove a very

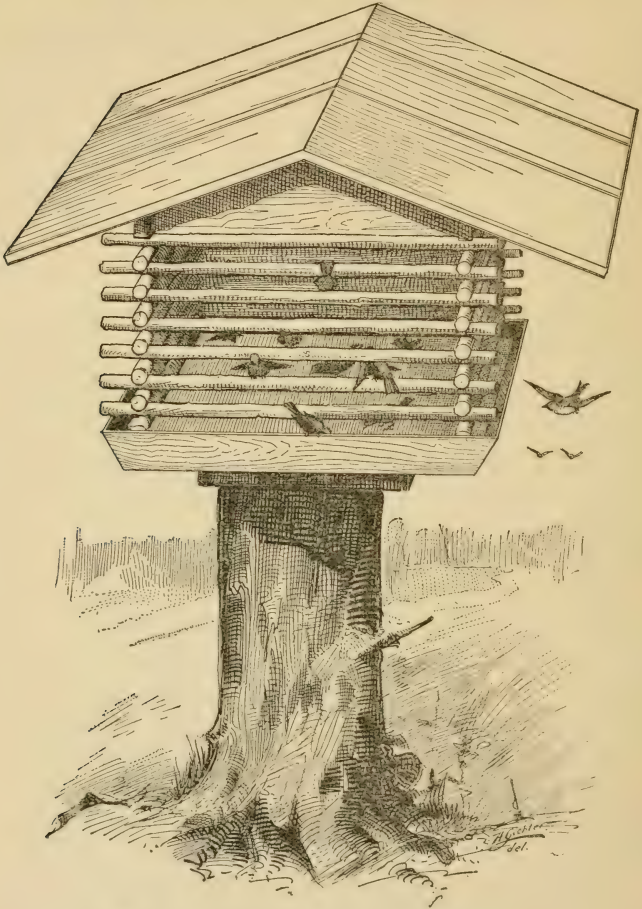


FIG. 9.—A FEEDING HOUSE FOR BIRDS.

attractive feeding ground. The ruffed grouse will most likely frequent it also. Feed all kinds of wheat and grain cleanings, light grain, cracked corn, sunflower seed, seed from hay lofts, and any kind of rather large seed. From time to time, a little unsalted chopped boiled meat may be given. The birds will probably appreciate chopped cabbage leaves and kale, when they cannot get any grass or greens. This is a matter in which not only bird lovers but particularly sportsmen are interested. As these birds flock together in the winter, it would be an easy matter to help a whole flock through severe weather and keep a whole township well stocked. A few years ago an early winter surprised the farmers of southern Minnesota and much corn was left unhusked. Flocks of prairie-chickens, numbering hundreds of individuals, soon gathered on these fields and staid near them all winter.

5. Feeding Birds in Public Parks. — Nothing special need be said under this heading. The person wishing to undertake the work can get information from the preceding pages. I hope that many public parks may systematically take up the work of bird protection. It seems to me that our Agricultural Experiment Stations, most of which are very favorably situated and are equipped with intelligent workers, could do good work along this line. Through them, reliable and specific information on the subject could be gathered for all sections of the country.

CHAPTER V

MISCELLANEOUS

Nesting Material, Dust Baths, Gravel, and Lime.—In city parks and on city lots it may frequently be desirable to provide nesting material besides nesting places. While our towns at large are mostly painfully dirty, certain streets, parks, and lots are kept clean. In such places the birds will readily make use of horse hairs from old mattresses, bits of threads, rags, tufts of wool, cotton, flax, pieces of hay, straw, and other similar material. A Baltimore oriole that was in need of material for nest building tried hard to pull his supply of strings out of a minnow net, which lay only a few feet from a boat-house. When some strings were placed on the ground, he used them at once. The same bird repaired his nest, after a storm had badly damaged it.

Many birds like to take a dust bath even in winter. Common road dust or pulverized garden soil is good for such use, and a supply of it should be provided before the ground freezes at the beginning of winter. Set shallow dust receptacles to their rim into the ground in sunny places, protected like drinking fountains. All gallinaceous birds are fond of dust baths. I have also seen the brown thrush enjoy one, and have repeatedly observed the house sparrows trying to bathe in dust on dry ground that was frozen hard and solid.

In wild and unsettled districts I have often found the dust baths of native sparrows in dry, sunny places on old unused lumber roads.

Nearly all birds, excepting, I believe, the birds of prey, swallow pieces of gravel or grit. Aquatic birds, shore birds, and seed-eaters are evidently most in need of it. I have seen the house sparrow pick gravel from the ice and snow on city sidewalks, when the temperature was about zero, and once on a warm August evening I observed a flock of about three hundred blackbirds picking up a dessert of gravel after they had returned from their field feeding grounds and just before they retired to roost in the rushes. Some gravel should, therefore, be placed near all feeding places.

The egg shells of birds consist of lime which the birds take into their bodies with food or water. In the egg-laying season the body's demand for lime is so great that domestic birds will eat bits of marble, limestone, crushed oyster and clam shells, and the shells of their own eggs. It is quite likely that wild birds also need an extra amount of lime in spring, and I would suggest that it be scattered in bits as large as ground coffee near their feeding places. Crushed burnt bones and crushed egg shells will probably answer the purpose very well, and can be prepared by everybody.

See: *Liebe*. Futterplätze für Vögel im Winter. Theodore Hoffmann, Gera, Germany.

Borggreve. Die Vogelschutzfrage. Hugo Voigt, Leipsic, Germany.

CHAPTER VI

PROTECTING THE BIRDS FROM THEIR NATURAL ENEMIES

Cats.—The foremost place among all song bird destroyers must, as we have already said, be assigned to the house cat, this half-wild beast of the woods that climbs roofs as well as trees and never learns to distinguish between birds and mice.

The most injurious cat in country districts is the feralized cat, one that has returned to a wild life in the woods. This creature lives on mice, gophers, birds, and eggs. Young birds and eggs are, however, much easier to catch than gophers and mice, and therefore he lives largely on birds and eggs during the summer months. Ground birds naturally suffer most by their destructiveness. These cats should be shot, trapped, or poisoned by every lover of birds and by every sportsman. Some of them come to farmhouses in very severe weather. Such occasions afford a good opportunity to the farmer boy for the use of his gun. I have heard of a pair of such feralized cats living in a skunk hole during the severe winter of 1898-99.

In town, city, and country, we have the tramp cat, which goes from farm to farm, or from house to house,

as its inclination dictates. Any method to eliminate these tramps, as Mrs. Davenport puts it, is perfectly proper. All cats habitually prowling about in fields, woods, and parks, should be killed. They are nefarious bird slayers, that use human habitations as the base of their operations.

The next cat is your own dear kitty, who sleeps under the stove all day, never scratches or bites, when baby pulls her ears or pinches her tail, and is too sweet-tempered to hurt the mice in your pantry. Some men and dogs have been known to lead double lives, but cats all lead double lives. Some cats, it is true, will catch mice, but in most city houses mice can be controlled by good masonry and carpentry and by traps and poison. On farms and in large barns good mouse cats are useful and often necessary, but, if you care for the birds, then do not keep more cats than you need, feed them regularly, and promptly dispose of all that show marked bird-hunting proclivities. A license law for town cats would, as has been said, be a good thing, but I fear that it could not be enforced. It would also tend to expose the advocates of bird protection to some ridicule, which at present would be very undesirable for the cause. To one who will go to the expense and trouble, I recommend a fence of wire netting from 6 to 8 feet high. Near the upper edge of this netting fasten from 6 to 10 wires, with close, sharp barbs. The space between the barb wires should be from $\frac{1}{2}$ to 1 inch wide. Another way would be to nail to the posts cross pieces from 10 to 18

inches long. These pieces should project at right angles to the outside. Connect these cross pieces by closely-drawn wires or by wire netting. A few barbed wires should be strung along the outer horizontal edge of this fence. Cover the outer ends of the cross pieces by a coil of barbed wire. A fence of that kind, I think, will keep out all wingless unbidden guests. The meshes in the wire must, of course, not be too large, there must be no holes left near the ground, and no posts, walls, or trees from which cats can jump into the enclosure. The appearance of such fences can be much improved by using them as support for annual climbing plants, such as the Mock Apple, or Wild Cucumber, *Micrampelis lobata*, Green. In fact, any ornamental climber which grows in your sections, and does not form wood enough for cats to climb on, will answer the purpose. Instead of wire netting, a strong, well-tarred fish net 6 feet or more in height may be used with good results. From time to time the net must receive a fresh application of tar.

Nests on trees may be protected in the following way : unravel a piece of rope, until you have a string of loose fibres. Wind several coils of this around the tree, and then cover the coils of rope with a thick coating of tar. Fresh applications of tar must be made as they become necessary. The tarred rope also keeps caterpillars from crawling up the trees.

Another means of preventing cats from climbing trees is the following ; cut a piece of wire netting on the bias and fasten it to the trunk like a hat rim.

The cut end of the wires pointing downward form an effective barrier against adventurous tabbies.

Various plans are suggested, because not every one is equally well adapted to all surroundings. A mother who tries hard to keep a little girl's frocks moderately clean, might reasonably object to the tarred net fence.

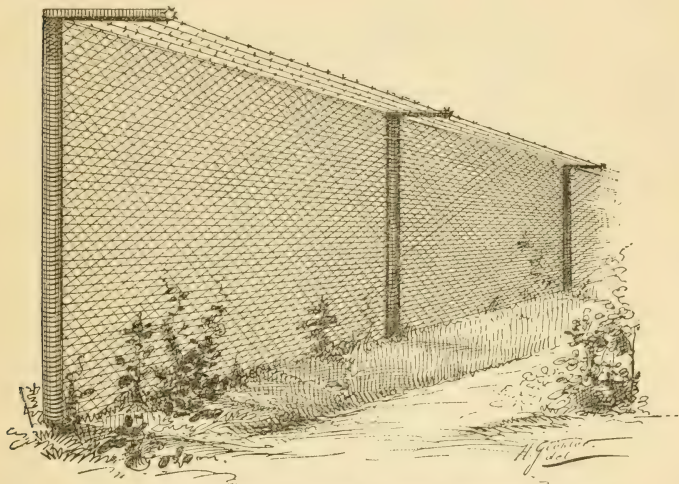


FIG. 10. — A CAT-PROOF FENCE. SEEN FROM THE INSIDE.

Dogs hunting without their master also destroy the nests and young of ground birds. In cities and towns a rigid enforcement of the license law will prevent most of such nuisances. In the country every bird lover must look after his own dogs, and against his neighbors' dogs he must employ such means as neighborly feeling, law, and discretion allow him to use.

Squirrels and Chipmunks. — It is well proved that these animals, especially the red squirrel, destroy many eggs and young birds. As every bird lover is generally a lover of all nature, he must decide whether he will sacrifice some birds and keep the squirrels and chipmunks, or whether he will restrict himself to birds, and shoot the amusing, frisky little rodents.

Weasels, Minks, Skunks, Foxes, etc. — In regard to these animals, I would say, from the bird lover's point of view, let nature alone. The birds must have somebody to look out for and to keep their wits sharpened. For my own part, I could not enjoy living in a world that was inhabited exclusively by very good people and by very sweetly singing birds. Let us keep some of the wild Indian creatures about us.

Hawks, Owls, Crows, and Jays. — The United States Department of Agriculture, in an admirable pamphlet called "Hawks and Owls from the Standpoint of the Farmer," has shown conclusively that of about fifty species of hawks and owls investigated, only four common United States species are actually injurious. These are the duck hawk, the sharp-shinned hawk, Cooper's hawk, and the goshawk. About ten species are wholly beneficial, thirty are chiefly beneficial, and in seven the beneficial and harmful qualities balance. This shows that nobody should kill a hawk or an owl unless he knows exactly what species he kills. Nine times out of ten the farmer kills one of his best friends, when he shoots a hawk or an owl.

That one may still see birds of prey nailed to barn doors, and that owls are still shot just to be mounted, is a disgrace to people living in a country where knowledge is so accessible and is so widely and liberally disseminated. Let every teacher procure a copy of "Hawks and Owls" and of "Farmers' Bulletin, No. 54, Our Common Birds," and then let every boy be informed about the hawks and owls his seniors may want him to shoot. I know from experience that such teaching is very generally effective with the boys. Only a few months ago a boy begged me to spare a great horned owl which he thought I intended to kill and mount. He was overjoyed to learn that my taste about mounted owls did not differ from his. Colleges, normal schools, and high schools can do much missionary work for the good of the people and for the advancement of science. In many of these schools a monthly paper is published by the pupils. These papers furnish valuable experience for a number of the pupils, but many of them certainly do not appear to be overwhelmed with valuable reading matter. In nearly every one of these schools are a number of boys and young men who take an interest in natural sciences, and who would be able to conduct a natural science column in the school paper. Articles on bird, game, fish, and forest protection would be appropriate matter in that column. Publications issued by the United States Department of Agriculture, by the state agricultural schools, by the Audubon societies, and other bodies might be mentioned and briefly described. In cities that main-

tain a public library, new popular scientific books might also be referred to from time to time. We must bring the results of scientific investigators home to the people, and here is a field white to harvest and more workers are needed. Boys and girls will be found enthusiastic in this kind of work, if teachers give them the necessary amount of encouragement and assistance. To act as mediators between the people and the universities is one of the noble missions of the teachers in common and secondary schools. "For life, not simply for the school," is our motto.

Do not overlook the county newspapers. Their editors are generally intelligent men that are glad to publish communications on the topics just discussed.

In conclusion, I would therefore say : Do not shoot owls, hawks, and eagles. There may be sweetness in the twitter of the warbler, but there is grandeur in the soaring of the kite and majesty in the flight of the eagle.

About crows and jays, it may be said that they undoubtedly are guilty of some mischief among smaller birds. The crow must, however, be classed as generally beneficial, and the jay will certainly be forgiven many sins by those who live where birds are plentiful in summer but scarce in winter. During the very cold weather of January and February, 1899, the blue jays were the only native birds that called merrily from trees and chimney tops in the city of St. Paul. Almost daily, their sky-blue plumage was displayed amongst

the brown oak leaves, and how interesting a sight it was to observe them carrying pieces of fried-out leaf lard from the veranda into their oak groves. The jays also deserve credit for being able to whip the English sparrows. If you find too many crows and jays near your homes, you can easily thin them out or drive them away.

CHAPTER VII

THE ENGLISH SPARROW QUESTION

THE multiplication of the English sparrow should serve as a warning to all people who would introduce foreign birds to this continent. If North America should be once more connected with Asia by a wide isthmus, the plant and animal life of both countries would be deeply affected. The Atlantic Ocean is an impassable barrier to most birds, and has probably existed as such a barrier since birds began to sing in the primeval forests. When we take an animal or a plant across this wide barrier, we introduce a disturbing factor into nature's household on the continent where the species is introduced. If the new species finds favorable conditions, it will multiply and spread rapidly until it meets a new impassable barrier. The most remarkable illustrations are the English sparrow, or house sparrow in this country and the rabbit in Australia.

The house sparrow affects European song birds in much the same way that it influences our own. As far as I know, it is not claimed that it has directly caused a decrease of European birds. We need, therefore, not be alarmed that it will cause the disappearance of our song birds. The enormous increase of the bird in this country is due to the following causes : —

1. There was certainly room for a bird scavenger in our towns and cities, where back yards and streets are not kept clean.

2. The construction of our houses, outbuildings, lumber sheds, railway depots, and other structures offer almost unlimited nesting facilities.

3. We have decreased the nesting facilities of our native birds by cutting old trees and brush near towns and cities. Our severely cut lawns and parks, with few large trees and very little shrubbery, furnish suitable nesting and roosting places for only a few native birds.

4. The English sparrow, finding in the winter so much food in back yards, around elevators, mills, farm-yards and railroad yards, is not subject to the decimating dangers of migration, and being hardy and omnivorous, is seldom exposed to starvation during the winter.

5. As it always lives near human habitations, it is little exposed to its natural enemies, except the house cat. Its wariness and cunning, and an experience extending over thousands of years, enable it to almost entirely avoid this arch enemy of bird-kind. I have never known an English sparrow to nest in a place readily accessible to cats.

If a severe snow storm begins on Saturday, continues over Sunday, and blocks the street traffic on Monday, then life looks gloomy for the bold chirpers, and many of them are starved. If a severe rain or hail storm passes over a town at night before the young have

become hardy, or before the birds have begun roosting under eaves, in sheds, barns, and other protected places, many of them also perish. These are about the only weather accidents which interfere much with them.

6. The bird is a prolific breeder, and an omnivorous feeder. It will take dead floating minnows out of the water, and catch insects on the wing as well as on the ground and on trees; it will eat grass as well as grain and salt pork, and, if necessary, it will nest on all kinds of trees.

A bird thus equipped is certainly one of the fittest of all creatures that ever spread wings to all kinds of winds, and as long as it lives under the favorable conditions just described it will continue to multiply until it has filled the land.

Injury caused by the House Sparrow. — To the gardener and agriculturist the bird does about as much good as harm. I know that it has done much, for instance, to control the box-elder leaf roller on my trees. To the bird lover it is mainly objectionable because by its bold, pugilistic, and mobbing proclivities it drives away the more desirable and beneficial native birds.

How can the Sparrows be kept in Check? — The complete extermination of the bird is an impossibility, and state or public bounties will only deplete the respective treasuries, without harming the sparrow to any great extent.¹

¹ See "Extermination of Noxious Animals by Bounties." *Year Book of the Department of Agriculture*, 1896.

I suggest the following means for controlling them:—

1. We must keep our streets, back yards, and farm-yards as free as possible from waste grain and offal.

2. Do not allow them to nest on your premises.

3. Do not allow them to roost. In warm weather they roost on trees, often in large numbers. In cold weather they seek more sheltered places, retiring about half an hour before sunset. Catch them, shoot them, turn the hose on them, or simply drive them away, and they will soon desert your premises. A small flock that roosted on my trees left for good after they had been disturbed three or four times.

I think, however, that all the means thus far mentioned will prove makeshifts not permanently producing the desired result. The only really successful method of fighting the sparrow pest is outlined in the following communication, which Mr. Frank Bond, editor of the *Wyoming Tribune*, Cheyenne, Wyo. has kindly placed at my disposal. He writes as follows:—

“I think it was in the autumn of 1889 that some of our trap shooters imported a quantity of the birds to shoot from traps, and, of course, a number escaped. These furnished the stock for future multitudes. For a year very few of the sparrows were seen, but as they multiplied and became bolder with numbers, they soon attracted my attention. I began shooting and poisoning them, getting permission from the city government to pursue the work in whatever way I thought desirable. Carrying on a regular campaign, I have succeeded in keeping their numbers so reduced that they have not

in any way interfered either with the pleasure of the public or the breeding and pleasure of our native birds, which have increased greatly in numbers with the growth of our trees and parks. We were set down in the midst of the 'great desert' thirty-two years ago, with nothing larger than plain's grass to cast a shadow in our neighborhood. Our city now, thanks to the energy of her people, is an oasis, through arboriculture, and the birds of the plains and lower mountains have come to dwell with us. It was in their interest, in great measure, that I began the destruction of the house sparrow. I think the close of my winter's work has never left more than thirty or forty birds uncaptured, unless more than that number escaped last spring. My work this winter, 1898-99, has been much more successful than usual, for after a thorough search a short time ago, I was able to find only one live sparrow in the city. There may be more, but there are certainly not many.

"Without going into the failures I have met with, I am satisfied that in this region poisoned whole wheat is the most effective engine of war.

"I take two small bottles of strychnine, one dram each, and mix the contents with about three quarts of water, boiling until the poison is thoroughly dissolved, using boiling water to begin with. Into the hot poisoned water I stir nearly if not quite, a peck of wheat, and then set the mixture aside for forty-eight hours. The grain absorbs all the water and swells greatly. I then spread the grain over the bottom of

a large pan, one that will just slide into my wife's kitchen range, keep the grain hot and stir it frequently until it is thoroughly dried. The grain *must not be scorched in the least*, as then the birds, especially the old ones, will not eat it. When the grain is thoroughly dried, it takes a better expert than even an English sparrow to discover any change in its appearance. If an exceeding deadly grain is wanted another dram of the poison can be used, but the above will be found effective. It needs but one grain of this wheat to kill a sparrow in *three* minutes as I have timed the experiment, and the grain gets no farther than the crop, sometimes not so far. I scatter the grain sparingly near the roosting places of the birds and in localities where they are accustomed to feed. Snowy, cold weather, when there is little bare ground, is the best time. The baited places should be visited daily, if possible, and the dead birds should be removed. You will be surprised at the killings you will make. By persistent effort, you can enormously reduce their numbers, and that is worth working for."¹

5. If you cannot drive the sparrows away or will not poison them, you may compromise with them by offering nesting boxes in places attractive to them, and take the eggs out of them as the sets are laid. In that way they can be kept from multiplying. The boxes may be made with a sliding or opening cover and may be placed where they are accessible from attic or second

¹ Compare "The So-called Sparrow War in Boston." *Bird-Lore*, August, 1899, page 137.

story windows, which the sparrows have not yet enclosed in their list of proscribed localities.

The destruction of the sparrows must not be left to small boys. In towns and cities the work should be undertaken by competent persons authorized or engaged by the municipality. Great care must be exercised in handling strychnine.

Where the measures just described are carried out, the sparrows will not become too numerous in gardens, in parks, and on farms. They will be largely restricted to the business streets of towns and cities and to other localities that are not inhabited by native birds.

It is not impossible that our native birds will to some degree accustom themselves to the sparrows. Robins, purple martins, red-headed and downy woodpeckers, I think, have already learned to hold their own successfully. Last winter I watched a downy woodpecker examining a soft maple. A sparrow drew up very close as if he intended to learn the downy's trade; suddenly the little carpenter turned upon his spectator and gave him a vicious peck, and the sparrow withdrew to a more respectful distance without an attempt at retaliation.

Moreover, the plucky, wary little creatures certainly deserve some consideration if not even a little admiration. I must confess that I prefer a flock of sparrows in my back yard to the shroud-like loneliness of snowdrifts; and in its habits and its conquest of the world the sparrow is undoubtedly one of the most interesting birds. He is an unequivocal imperialist

and has been most successful in annexing and holding new territories. Still, if you desire our beautiful and musical native birds to live with you, you must keep down the sparrows.

Mr. Frank Bond has furnished me the following list of mostly western birds which have been taken in and near the city of Cheyenne, Wyoming. None were taken more than three miles from the city limits. A large number of these birds would be more or less annoyed by the English sparrow, if that pest had not almost been exterminated at Cheyenne. The numbers refer to the second edition of the Check-List of North American Birds published by the American Ornithologists' Union.

394a. Gardner's Woodpecker.	488. American Crow.
404. Williamson's Sapsucker.	491. Clarke's Nutcracker.
406. Red-headed Woodpecker.	492. Piñon Jay.
408. Lewis's Woodpecker.	495. Cowbird.
413. Red-shafted Flicker.	497. Yellow-headed Blackbird.
418. Poor-will.	498. Bahaman Red-wing.
420a. Nighthawk.	501b. Western Meadowlark.
432. Broad-tailed Humming bird.	508. Bullock's Oriole.
447. Arkansas Kingbird.	510. Brewer's Blackbird.
448. Cassin's Kingbird.	511b. Bronzed Grackle.
454. Ash-throated Flycatcher.	514. Evening Grosbeak.
457. Say's Phoebe.	519. House Finch.
459. Olive-sided Flycatcher.	524. Gray-crowned Leucosticte.
462. Western Wood Peewee.	528. Redpoll.
474c. Desert Horned Lark.	529. Holböll's Redpoll.
475. American Magpie.	530. Arkansas Goldfinch.
478b. Steller's Jay.	533. Pine Siskin.
	534. Snowflake.

- | | |
|---|---|
| 536. Lapland Longspur. | 621. Northern Shrike. |
| 537. Smith's Longspur. | 622 <i>a</i> . White-rumped Shrike. |
| 538. Chestnut-collared Longspur. | 624. Red-eyed Vireo. |
| 539. McCown's Longspur. | 646. Orange-crowned Warbler. |
| 540 <i>a</i> . Western Vesper Sparrow. | 647. Tennessee Warbler. |
| 542 <i>b</i> . Western Savanna Sparrow. | 648. Parula Warbler. |
| 552. Lark Sparrow. | 652. Yellow Warbler. |
| 559 <i>a</i> . Western Tree Sparrow. | 655. Myrtle Warbler. |
| 560. Chipping Sparrow. | 656. Audubon's Warbler. |
| 561. Clay-colored Sparrow. | 661. Black-poll Warbler. |
| 562. Brewer's Sparrow. | 675 <i>a</i> . Grinnell's Water Thrush. |
| 567 <i>a</i> . Oregon Junco. | 680. Macgillivray's Warbler. |
| 568. Pink-sided Junco. | 681 <i>a</i> . Western Yellow-throat. |
| 574 <i>a</i> . Sage Sparrow. | 685. Wilson's Warbler. |
| 581 <i>a</i> . Desert Song Sparrow. | 687. American Redstart. |
| 583. Lincoln's Sparrow. | 700. Sprague's Pipit. |
| 588. Oregon Towhee. | 701. American Dipper. |
| 596. Black-headed Grosbeak. | 702. Sage Thrasher. |
| 599. Lazuli Bunting. | 704. Catbird. |
| 605. Lark Bunting. | 715. Rock Wren. |
| 607. Louisiana Tanager. | 721 <i>a</i> . Parkman's Wren. |
| 608. Scarlet Tanager. | 726. Brown Creeper. |
| 611. Cooper's Tanager. | 727 <i>a</i> . Mexican Creeper. |
| 612. Cliff Swallow. | 728. Red-breasted Nuthatch. |
| 613. Barn Swallow. | 730. Pygmy Nuthatch. |
| 614. Tree Swallow. | 738. Mountain Chickadee. |
| 616. Bank Swallow. | 749. Ruby-crowned Kinglet. |
| 617. Rough-winged Swallow. | 754. Townsend's Solitaire. |
| 618. Bohemian Waxwing. | 758. Russet-backed Thrush. |
| 619. Cedar Waxwing. | 761. American Robin. |
| | 761 <i>a</i> . Western Robin. |
| | 768. Mountain Bluebird. |

CHAPTER VIII

BIRDS ON HATS, BOYS, COLLECTORS, SO-CALLED BIRD STUDENTS, BIRD HUNTERS, UBIQUITOUS GUNNERS

IT is a pleasure to state that the fashion of wearing birds on hats is certainly waning. Let every girl and every lady interested in song birds refrain from wearing any feathers except those of game birds, domestic birds, and ostriches, and the plume hunters' business will cease to pay and die a natural death. Intelligent women, prominent in society, can easily place hats with song-bird corpses under the ban. With the school-girls, the teachers can accomplish the desired result. Still more good would result, if some inventive genius could discover a process by which artificial feathers could be successfully manufactured from rubber, celluloid, or some other substance. Perhaps the feathers of the numerous varieties of domestic fowls could be so prepared that they would satisfy the most divergent tastes. Any one who would invent or perfect a process by which the manufacture of artificial feathers would become a commercial success, would be one of the greatest benefactors of the birds. I am convinced that the majority of women wearing feathers of song birds or other wild birds do so from ignorance. Schools,

societies, and the press must do their duty to dispel the darkness. The business of the plume hunter is a particularly disgusting one, because his favorite hunting time is the breeding and nesting season of birds, when their plumage is at its best. A Florida plume hunter once told Mr. Frank M. Chapman that he had killed three hundred egrets in one afternoon. This meant that he had caused the death of about one thousand helpless nestlings by starvation. The only wrong these innocent creatures had ever committed was that their parents bore a beautiful, delicate plumage which ignorant or vain women will buy regardless of the brutal slaughter by which it was obtained.¹ Does the word of the prophet "Have we not all one father, hath not one God created us?" only apply to human kind with all its sinfulness, corruption, and depravity? Should it not apply to the birds and the beasts of the woods, many of which are far more faithful and useful workers in the vineyard of nature than some people who live in first-class hotels?

Among the members of the Audubon society we notice a few divines and clergymen, but their number should be much larger. Is it not about time that our churches, too, preach and practice humaneness in its

¹ Send for a leaflet entitled: "The Wearing of Herons' Plumes or Aigrettes," by Frank M. Chapman. Address Miss Emma H. Lockwood, 243 West Seventy-fifth St., New York City, or Miss Mary A. Mellick, Plainfield, N. J. The pamphlet is sent free to applicants.

All ladies and girls interested in birds and in humane work should read: "The Audubon Societies and their Work," by Frank M. Chapman, the *Delineator*, March, 1898.

widest sense? Are there not many preachers of the Gospel who are ignorant of nature, from which their Master could draw so many great and beautiful lessons? Ministers and churches have, indeed, taken up the battle for the dumb creatures that man has forced into servitude so that he himself might reach higher and nobler aims, but of our dumb kin of woods and fields it is still true that "the whole creation groaneth and travaileth in pain together until now." If our science is of the right kind and if our Christianity is more than a custom, then let our sympathy and mercy come forth and speak for all of our Father's children that cannot speak for themselves.

Nor need we go back to the prophets and apostles of Israel; the seers have lived and many are still living in our midst. Have we heeded them? Read the following lines from Longfellow, who never believed that the higher and stronger being should merely act the part of the brutal conqueror.

"Then the little Hiawatha
Learned of every bird its language,
Learned their names and all their secrets,
How they built their nests in summer,
Where they hid themselves in winter,
Talked with them whene'er he met them,
Called them 'Hiawatha's Chickens.'

"Of all beasts he learned the language,
Learned their names and all their secrets,
How the beavers built their lodges,
Where the squirrels hid their acorns,

How the reindeer ran so swiftly,
Why the rabbit was so timid,
Talked with them whene'er he met them,
Called them 'Hiawatha's Brothers.'"¹

The boy collector must be taken in hand by the teacher, as will be shown in the next section.

The professional and the amateur collectors must be handled by the public press and by the courts. Let the Audubon Society, the humane societies, the League of American Sportsmen, and the state game wardens work hand in hand on these nuisances without any jealousy. Where a warning might be sufficient no prosecution should take place. The state game wardens and the L. A. S. will gladly look after the law-breakers that are made known to them. It is, of course, not advisable to make complaints of this kind in court against one's neighbors, but where societies are in earnest they can easily find means to make unlicensed collectors very uncomfortable. When collections are to be made for really worthy purposes, the state game warden should issue a license.

The trade in mounted song birds and in bird eggs must be suppressed. Let every lover of nature show what he thinks of the persons in this trade, and of the papers and magazines facilitating it. You participate in the wrong, if you give any moral or business support to any of them. In a paper which pretends to work in the interest of game protection I find the following advertisement:—"Learn to Stuff Birds," etc. Then

¹ See also Longfellow's "The Birds of Killingworth."

a certain preparation is recommended and a correspondent writes that he has a class of seven boys learning the art of stuffing birds, an art which the average boy should not learn.

Withdraw your support from all persons that work for bird destruction. Let individuals and societies notify the publishers of papers and magazines, when such advertisements appear. The next step would be to enact laws forbidding the trade in mounted song birds and in bird eggs. The advertising of such material would be or could be made *prima facie* evidence of a violation of the law.

I think it will also be found necessary to prohibit or regulate by law the caging and keeping of native live song birds. If a prohibition is not considered wise, then a license should be imposed, but such a license would be difficult to collect. In Europe a regular bird-catching industry sprang up and had to be ostracized by law. One can find now in almost any bird store mocking birds and Kentucky cardinals. To what extent this trade has affected the number of these birds in their native haunts farther south I do not know. I surmise, however, that it must reduce them considerably, because for every bird that is successfully raised or tamed, two or three will perish. Let us go where wild birds are not forced to sing behind iron bars.

The actual song-bird hunters, those fellows that shoot song birds in order to devour the tiny morsels, deserve no mercy whatever. They are mostly people who come from European countries where all mamma-

lian game and all game birds have been exterminated. The only hunting sport these people know is the catching and shooting of song birds during the spring and fall migration. If the Italian peasantry catch and eat nightingales and skylarks by the thousand, they may at least claim as a mitigating circumstance that there are no other creatures on which they can indulge their taste for out-door sport. Any one who has ever felt the exhilaration of a day's shooting on a North American rush-fringed lake, can sympathize with them, but in this country we cannot tolerate song-bird hunting as long as we have still millions of ducks and grouse. If a person will not go to the expense of reaching duck and grouse grounds, let him hunt song birds with kodak and camera — or track mice and rats. Fortunately only a few large cities have a bird-hunting population. A heavy penalty should be placed on the shooting of small birds that are not game birds. Park superintendents, landowners, and societies should put up signs calling attention to the law and the penalties. Such signs will not keep off all offenders, but they do keep away a great many and make all very cautious. Every offender caught should be handed over to the full severity of the law. On the military reservation of Ft. Snelling, Minn., such signs have proved very useful, so that its groves and river bottoms have become a paradise for birds, although the reservation is easily accessible to residents of both St. Paul and Minneapolis.

The points just discussed must make it evident to all bird lovers that it is to the interest of song birds to

have our game mammals, our game birds, and our fish protected and preserved. Where deer have disappeared, coons, hares, and rabbits have become big game, and where geese, ducks, grouse, and quail are exterminated, robins, orioles, and bluebirds will become fowls, as is proved in several South European countries. Men and boys will continue to love the gun and the rod, and however much we may desire to make our boys become true lovers of nature, we certainly do not want to educate their aggressive virility and their love for sport and adventure out of them. A nation needs philosophers, poets, artists, and perhaps even some dreamers, but she also needs just that bubbling vitality which in every healthy boy is the delight of parents and teachers who take the trouble to understand boys. Give your restless, mischievous, mean boy a good book on outdoor sport, and he will at once drop mischief and meanness, forget even about eating, and will quickly become your staunch friend.

I cannot close this chapter without calling attention to the nuisance of ubiquitous, irresponsible gunners of all classes, men, women, and boys. If you have not enough moral backbone to let song birds, ducks, loons, terns, and other lake and shore birds alone, when you go on a summer outing or for a few days' fishing, then in the name of human kindness and for the sake of the birds, leave your guns and little rifles at home! The birds were not intended for your targets. Have another gun slave throw up potatoes for you and remember that the ball will penetrate or possibly pass

the potato. What does a man want with a gun, anyhow, during the close season? It is all right to buy your twelve-year-old boy a gun or a .22 rifle, but see to it that he does not shoot at everything that creeps, runs, or flies! Boys going about with firearms in towns or in the immediate vicinity of towns are an unmitigated nuisance. They do not know any better, but their elders do know better, or they should be taught by the courts.

A communication which I find in the March number of *Recreation* of 1899 contains such a sad comment upon the common sense and self control of so many city outing parties that I reproduce it here: —

“Many people visit our trout streams during the summer. All—men, boys, and, I am sorry to say, ladies—carry .22 rifles. Our visitors are in the country for fun, and when they are not fishing, they must shoot. So our robins, larks, and bluebirds yield their lives to afford a moment’s amusement to creatures of a presumed higher scale. One incident I noticed particularly. I saw a pair of bluebirds building in a hollow stump, and as often as I passed I looked at them. After a while, five beautiful eggs lay in the nest. At my next visit, I was greeted by the gaping mouths of four baby birds. A short time after, I saw two ladies—save the mark—shooting .22’s near this nest. The next evening I passed, and there beside the stump lay the mother bird with a bullet hole through her body, and in the nest were her four babies, dead of cold and

starvation. This is but one incident of many that occurred on the Rattlesnake, and no doubt on all streams where parties go for a few days' outing.

"G. E. VAN BUREN,
"Missoula, Mont."

Is it a wonder that our birds decrease? Cats hunt them in the city; ignorant schoolboys molest them in the country; men, boys, and females, whom Mr. Van Buren very charitably, but just as inappropriately calls "ladies," murder them at summer resorts and in the trout-stream woods. If you are a good marksman, you need not demonstrate it on song birds and on innocent shore birds in the summer time. If you cannot be happy without shooting, take an old barn-door with you and place it against a sand hill. We are in great need of a gun license to keep track of the fools, old and young, male and female. The wonder is that we have any birds left at all.

The only legal remedy to abate this nuisance would be a gun license in every settled district.¹

¹ See "Principles of The League of American Sportsmen," page 132.

CHAPTER IX

SONG BIRDS AS FOOD

THE disgraceful killing of song birds for food has already caused fearful destruction among the birds in some sections of our country. From Pennsylvania, Massachusetts, Rhode Island, Tennessee, Michigan, North Carolina, and New Orleans come reports saying that song birds, and, in fact, practically every kind of bird is shot, sold, and devoured as game. The criminals are mostly French, Italian, and Hungarian laborers in the northern states, and negroes, Italians, and French creoles in the southern states. Robins, thrushes, flickers, native sparrows, and even swallows are sold in the markets of New Orleans. In 1897, two thousand six hundred robins were received by one dealer in Washington, D.C., in a single month. The birds were shipped from North Carolina and had been killed while roosting.

The only kind of teaching this class of criminals is capable of appreciating are the programmes dictated by the judges and carried out by state prison wardens and county sheriffs. The League of American Sportsmen and the Audubon Societies are now extending their work into the southern states, and they will not hesitate to have the laws applied; and every good citizen should help them in this duty.

To all lovers of nature, however, these reports show the great importance of protecting our real game birds, mammals, and fish. Private citizens and societies must do all in their power to have game, bird, fish, and forest protection taught in every kind of school in the land. Ten, fifteen years from now, the boys and young men now in the schools will take part in expressing and forming public opinion, and many of them will be members of state legislatures and some will be in congress. If we win them now, and we can win them, the days of disgraceful, barbarous destruction will have come to an end. Creating a general public sentiment on this subject is the only way of settling this question right.

In the common schools the subject must receive due attention in connection with nature study, which we must teach in real earnest in every school. In secondary schools and colleges the professors of botany and zoölogy must at times wrest themselves away from microscopical cells and abstruse biological problems and not forget entirely the flowers, the trees, the birds and beasts which made this earth interesting and beautiful long before microscope and microtome revealed their minute anatomy.

SECTION V

EDUCATION AND THE BIRDS

CHAPTER X

Educating Adults.—Those grown people that are willing to be educated can be reached by the public press, and by such magazines as *Bird Lore*, *Recreation*, *Forest and Stream*, and others; by the publications of the United States Department of Agriculture, and by the abundant and constantly increasing bird literature.

The Audubon Societies, the League of American Sportsmen, and other societies that work for the preservation and appreciation of the interesting and the beautiful in nature, have already done much good work, but their membership must be very much increased. To compel people desirous of joining one of these societies to write a letter and expend from five to ten cents in order to have his membership fee of twenty-five cents or one dollar reach the proper parties, is very poor business policy. In every town one or more book-stores and other business houses will be found willing to receive dues and issue membership cards. Display in these places the beautiful colored chart of twenty-six common birds, published by the Massachusetts Audubon Society, and on a placard attached to the chart invite people to join. On a table near the chart

place some circulars explaining the purpose of the society. Public libraries would also be good places for this missionary work. There can be no possible objection to this method, which is employed by all kinds of respectable business concerns. The time of people who are interested in such work is generally of some value, and they cannot afford to spend two hours in carrying fifty cents to an out-of-the-way private residence. I know of a man in a large western city who had to write to New York for the address of his local Audubon Society. Leagues and associations for game, fish, and forest protection might employ similar methods. Gun stores and dealers in sportsmen's goods will generally be found willing to receive dues and issue membership cards.

DIRECTORY OF STATE AUDUBON SOCIETIES

WITH NAMES AND ADDRESSES OF THEIR SECRETARIES

1. *Connecticut.* Mrs. William Brown Glover, Fairfield.
2. *District of Columbia.* Mrs. John Dewhurst Patten, 3033 P street, Washington.
3. *Illinois.* Miss Mary Drummond, Wheaton.
4. *Indiana.* Amos W. Butler, State House, Indianapolis.
5. *Iowa.* Miss Nellie S. Board, Keokuk.
6. *Massachusetts.* Miss Harriet E. Richards, care Boston Society of Natural History, Boston.
7. *Minnesota.* Mrs. J. P. Elmer, 314 West Third street, St. Paul.
8. *New Hampshire.* Mrs. F. W. Batchelder, Manchester.
9. *New Jersey.* Miss Anna Haviland, 53 Sanford avenue, Plainfield.
10. *New York.* Miss Emma H. Lockwood, 243 West Seventy-fifth street, New York City.

11. *Ohio.* Miss Clara Russell, 903 Paradrome street, Cincinnati.
12. *Pennsylvania.* Mrs. Edward Robins, 114 South Twenty-first street, Philadelphia.
13. *Rhode Island.* Mrs. H. P. Grant, Jr., 187 Bowen street, Providence.
14. *West Virginia.* Elizabeth I. Cummins, 1314 Chapline street, Wheeling.
15. *Wisconsin.* Mrs. Geo. W. Peckham, 646 Marshall street, Milwaukee.
16. *California.* Mrs. George S. Gay, Redlands.
17. *Tennessee.* Mrs. C. C. Conner, Ripley.
18. *Texas.* Miss Cecile Seixas, 2008 Thirty-ninth street, Galveston.¹

It is to be hoped that in the near future this society will be able to extend its work to every state and territory. Every large city should also have a society. Officers of the societies will do well to correspond with the teachers who have charge of the nature study work in the schools.

All adults who continue to break the laws enacted for the protection of song birds should be warned, and prosecuted, if necessary. In states where no such laws exist, the society should see that they are enacted. It will also prove desirable to pass a law combining a Bird Day with the Arbor Day now observed in many states.

TEXT OF THE MINNESOTA BIRD AND ARBOR DAY LAW, PASSED 1899

“The governor is hereby authorized to set apart each year, by proclamation, one day to be designated as Arbor and Bird Day, and to request its observance by

¹ This list is taken from the October number of *Bird Lore*.

all public schools, private schools, colleges, and other institutions by the planting of trees, the adornment of school and public grounds, and by suitable exercises, having for their object the advancement of arboriculture, the promotion of a spirit of protection to Birds and Trees, and the cultivation of an appreciative sentiment concerning them."

The following states have passed a Bird and Arbor Day law : —

Massachusetts, Minnesota, Wisconsin, Indiana.

Islands, Groves, Parks, and Woods Commemorative of Noted Ornithologists. — If the spirit of Audubon could come back to earth, he would be but little pleased with bronze or marble statues erected to his memory in a country where men and boys slaughter birds and where women wear the corpses on hats. An island, a grove, or any other convenient place made especially attractive to birds, and named Audubon Island, Nuttall Grove, or Wilson Park would be the best tribute to these bird-lore pioneers. In a similar way we could truly and fittingly honor many of our nature poets, writers, and scientists. It is very desirable to attract coots, blackbirds, snipes, swamp wrens, and other birds to our park lakes. In order to do that, we must allow rushes, weeds, and sedges to grow in corners and bays, which would also make good spawning places for some kinds of fish. These rushes, cat-tails, and floating plants have also an æsthetic value, and a lake or pond without them is about as interesting as a piece of window glass.

CHAPTER XI

EDUCATING THE GROWING GENERATION

THIS education must begin in our public schools. Every boy is a born bird student, but his natural methods are too destructive for the birds. In the nature study work children must learn the habits of our common birds and must learn of the benefits the birds render us. Give them glimpses of the work of birds, how they build their little homes, care for their young and defend them at the risk of their own lives. Show them to what dangers birds are constantly exposed and how the fall and spring migrations always are long, dangerous journeys. Too much direct forbidding and preaching is harmful, for in the heart of every boy sleeps the spirit of opposition. Soft sentiment or gushing talk is also harmful. In connection with the study read such articles as "Silverspot, the Crow," and "Red-ruff, the Don Valley Partridge" in Thompson's "Wild Animals I Have Known." Literature of that kind creates true sympathy with nature and after that is awakened, the boy is converted.

Tell the children about the hardships that winter birds are exposed to, and teach them how to feed birds in winter and in unfavorable weather at other seasons. Let the boys make nesting boxes and study the tenants of the boxes. This bird study should not be mere play, but should be made profitable although pleasant

work. Let teachers and schools do all they can to spread good bird literature and to fight such traditional ignorance that does, for instance, still prevail against hawks and owls. This work must, however, also receive due attention in high schools and in normal schools from which our teachers go out. In these schools, as well as in common schools, bird study clubs can do much good, *if they strictly* refrain from collecting birds and eggs and if the teachers see to it that nests are not too frequently visited. Every bird actually placed in a collection by schoolboys probably means the wounding or killing of half a dozen. You may be sure that, if you start schoolboys collecting eggs and birds, you will soon have studied the birds out of the country. Every teacher that augments the egg and bird collecting mania helps to decrease our birds.¹ Use good charts and colored pictures, observe the birds outdoors, and let alone those that you cannot reach by these means. Moreover, in many states, schoolboy collectors would violate the law. This collecting must be done only by competent licensed collectors. Most private collections serve only the whim of the collector. With proper directions children may profitably collect insects, plants, and minerals, but they may learn much and not make any collections. There is certainly knowledge that would be too dearly

¹ Teachers and others who are interested in natural sciences but do not have access to many books, to libraries, and museums, can get much help and inspiration from the Agassiz Association. For detailed information, write to Mr. H. H. Ballard, Pittsfield, Mass.

bought for the child. The flowers bloom most beautifully where they grow, and birds are most beautiful and sing most sweetly when they perch on the free swaying branches. I know of more than one bird and egg collection that serve no other purposes except to be in safe cases and accumulate the dust of ages.

Bird Day in the Schools. — Our teachers have so much experience in arranging all kinds of exercises that special directions for the observance of Bird Day seem not necessary. Songs, declamations, reports of observations, illustrated talks, and easy dramatic representations are in order. Reports about individual birds will always be much appreciated, and the younger the pupils are, the more anything with action in it will appeal to them. Bird magazines and educational papers furnish an abundance of material, and much excellent matter can be found in the works of our classical poets and writers. Nor is it necessary that all the exercises be about birds. From a pedagogical point of view, it would be better to observe a Nature Day than to limit ourselves strictly to trees and birds. Bird study, like every other good thing, can be overdone, so that the public and the children will become surfeited.

A little Bird Day material is here offered, with the hope that it may prove useful in some schools and homes. It will probably be best to select from it, as to give all of it might unduly lengthen the programme. It is much better that the children should wish they could have had a little more than that they should be wearied by exercises that are too long.

SECTION VI

THE BIRDS BEFORE UNCLE SAM

General Directions.— A person who has the time and is willing to take the trouble, can interest the children much in exercises in which a number of children act the parts of different birds. The exercises may, of course, be arranged without any special costumes for the participants; a few suggestions, however, are here offered for such costumes. The dresses or costumes of the children need not copy the coloration of the birds, but it is desirable that they be at least suggestive.

Where special suits are made, dress the boys in tight-fitting brownie suits. Cut out large wing-shaped pieces of cloth, gather and fasten these on the shoulder and down the back, and let them fall in points over the hands. Colored tissue paper and any colored paper is good material to bring out the color effects.

For girls, use tight-fitting waists, with wings made as for boys. Use paper, cambric, or any other inexpensive material.

Where no suits are to be made, any dress or clothing on which the desired color predominates may be used. Touches of other colors can be added in various ways,

as by caps, hoods, strips, and pieces of paper; but the effect should be pleasing and not ridiculous. The size, complexion, color of the hair, and temperament of the children must also be considered. If handled in the right way, it may be possible to make such exercises a success in high schools and normal schools. Care should be taken not to make the exercise too long. The amount of matter to be used and its arrangement must be decided by the person in charge. The wings should be omitted from the costume, unless a pleasing effect can be attained.

1. *The Mockingbird*.—Boy ten to fourteen years old. Front light gray, back gray, wings brown-gray.
2. *The Snowy Heron*.—Girl twelve to sixteen years old, plain white.
3. *Rose-breasted Grosbeak*.—Girl, rose carmine vest, skirt gray, back black, wings black with one large white spot.
4. *Green-winged Teal*.—Girl of eight to fourteen, chestnut-brown gimp with high neck collar, wings dull gray, with a broad green stripe, skirt light gray.
5. *Blue-winged Teal*.—Girl of eight to twelve, small lead-purple gimp, waist brown, skirt gray, wings dull sky-blue.
6. *Orchard Oriole*.—Girl of eight to twelve, black gimp, extending down to the breast, waist and skirt reddish brown, wings black, with large brown spot touching the gimp toward the front.
7. *Brown Thrush*.—Girl of ten to twelve, waist light gray, speckled with brown, wings and skirt brown.

[These birds occupy seats near Uncle Sam's desk and act as attorneys or speakers for the birds. Other birds may be selected for this part in some cases.]

PART FIRST

INTRODUCTION

By the Mockingbird

We birds have written to Washington,
We have written to Uncle Sam ;
And he will be present
To hear our complaint
And will see that justice is done.

In open court we complain to-day
Against old and young evil-doers.
The thoughtless boy, the gray-headed fool ;
The farmer, the gardener, the gunner,
The lady who cruelly pins us to hats, —
They must all go where birds never sing.

[Uncle Sam enters represented by a large boy, dressed in the usual Uncle Sam costume, bows to the audience in two or three directions and takes his seat behind a table or large desk. A boy dressed as a soldier carries in Uncle Sam's valise, places it on the floor, and takes a lower chair in some convenient place near Uncle Sam. On the table are a number of real or supposed large law books. Uncle Sam carries a big gun and a sword.]

Uncle Sam

I have a letter from the birds,
Now let them come and speak.

The Mockingbird

Most honorable Uncle Sam,
As birddom's attorneys we come.

Please, graciously hear our pleadings,
This is what the birds have to say:—

In your blessed land of freedom
We have lived for years and years,
Long before the white man came here,
We have played in wood and glen,—
Since the days of Pilgrim Fathers
We have been the farmer's friends;
But we have most grievous charges
'Gainst him who ought to protect us.
For five hundred thousand beetles
He will not ten berries pay;
We should catch all caterpillars,
But should not touch grain or corn.
Please make him to plant some bushes,
Tell him not to cut old trees.
Willingly he pays your taxes,
Please tell him to pay us ours,
Ask him not to house the sparrows;
And to kill bird-eating cats,
All cats, roaming in the woodland,
All cats that do climb our trees.

Uncle Sam

[To a boy dressed as farmer or gardener. Uncle Sam speaks harshly, his right hand on a gun, musket, or sword.]

Now, old fellow, you pay your taxes;
Go home, don't growl at the birds, send me your bad
cats!

[The farmer leaves.]

The Snowy Heron

Very much it truly grieves us
 That complaint we have to make
 Against many lovely ladies
 Who do wear our wings on hats.
 They would never kill a fine bird,
 But they send a cruel man,
 Send the heartless plume collector. —

He knows no mercy,
 No beauty respects,
 He heeds not our piercing cry.
 The father he kills,
 The mother he snares,
 And the helpless fledglings
 He starves in the nest.

He slays us for our beauty
 In weird, lone Everglades,
 In bays and sounds of Georgia,
 On Mexico's lagoons.

Uncle Sam

[Wrathfully to a large boy who is provided with a small gun and represents the plume-hunter.]

I will teach that rascal manners !
 Let me have that little gun !

[To the soldier]

Put him in our iron cage !

[The soldier leaves with the plume-hunter and returns after a moment.]

The Rose-breasted Grosbeak

There's another baneful nuisance
 By which we do suffer much, —
 The professional bird collector,
 That bad man who steals our eggs.
 Nothing does he with our bodies,
 No use makes he of our eggs ;
 Just collects for all blood money,
 Or locks all up in his case.
 Little he cares for our habits,
 Nothing cares he for our song,
 All the boys that see him prowling
 Surely take to prowling too.
Killing, stealing, — he calls taking ;
 Oh, protect us from this fiend !

Uncle Sam

[To the attorneys and the public]

If you ever catch that knave,
 I'll put him in a dungeon
 Where he'll never hurt bird or beast.

The Blue-winged or the Green-winged Teal

It is with no little chagrin
 That we also make complaint
 Against men that go out hunting,
 Against boys that live in camps,
 When their sultry schoolroom closes,
 When blue flags in marshes bloom.

Sportsmen hunt us in the springtime,
When we wish to build our nests ;
From the flower-fringed lakes and rivers
They drive us to Arctic lands ;
Northward, northward to Alaska,
To the wilds of Labrador,
To the dreary Musk-ox Barrens, —
Scarcely dare our wings rest there. —
Sportsmen, do give us a homestead,
Let us rest in sunny climes !
Give us time to raise our children,
Give them time to learn to fly !
Boys and men, when camping, fishing ;
When you carry guns about,
Do not shoot at spluttering ducklings,
Do not shoot at fishing cranes !
Let the laughing loon be happy,
Let the coot play on the pool !
Please remember that in summer,
When you ramble, play, and rest,
We are also playing, resting ;
Happy in our harmless way.
Do not make our breasts the target
For your deadly ball and shot !
Lake, and woods, and pond, and river, —
Dearly do we love them all.
Must we leave them sad and lonely ?
There's no life without the birds !

Uncle Sam

Those men who shoot in the springtime,
Boys who hunt at summer camps,
I will gather on my flat boats,
Land them on a sandy shore,
In the desert of Sahara.
They may keep their guns and cannons,
But never even see a crow.

The Orchard Oriole

And at last we're sad to mention
That some schoolboys cause much grief :
With their sling-shot, with their air-gun,
With their rifles, snares, and bow,
And with stones and sticks and missiles
They cause many a bird despair.
Teach them that a broken wing bone
Hurts worse than a broken leg, —
And we cannot call the doctor,
Mother cannot bandage it.
Bleeding wounds, which you have caused us,
Pain us worse than rusty nails
Driv'n into the feet of children, —
And we have no balm for wounds.
If you wound us, if you wing us,
We must die in agony,
Or a horrid cat will spy us
When on bush or lawn we rest. —
A few scattered, bloody feathers,

They tell of your fun and sport, —
They tell of the robin's death.

Uncle Sam

If you have such mean boys with you
I would like to run them in.
I will put them in a dark room,
Where they'll ne'er see sun or moon.

In a fort on some far island
I'll build cellars dark and damp.
They'll be full of salamanders,
Full of mice and rats and snakes,
Crawling lizards, cold and clammy,
With the yellow, blotchy spots.
That's my place for girls and women
Who wear murdered birds on hats.

[At this place, some music or a song should come in.]

PART SECOND

The Brown Thrasher

[Introducing some of the birds.]

A few of the birds are waiting ;
They wish to call on the boys,
They wish to call on the ladies and girls,
And desire much to see Uncle Sam.

A Boy

Let the birds be welcome !
They are welcome in our homes,

Welcome they are in our schoolroom,
They are welcome everywhere !

The Robin

1. My clear happy voice and my rust-red breast
Are known to every child ;
I feel it's quite needless to make an address,
You've known me a long, long while.
 2. When you hear me sing from the top of the tree
On the bright and crisp March morn,
The baby claps his hands with glee
And cries, " Oh, the robin has come ! "
- [Boy or girl of eight to fourteen ; boy with brick-red vest, coat and trousers brown ; girl with brick-red waist and brown skirt, high, white collar and brown wings for either boy or girl.]

The Hummingbird

1. I am the little hummingbird,
The tiniest in the hall ;
My breast and throat are ruby-red,
I scarce eat bugs at all.
 2. The honey in the columbine,
The dew on the woodland rose
That is the food on which I dine,
I dwell where the wild vine grows.
 3. My home is small as baby's spoon,
My eggs are snowy white ;
Where harebells nod and lilies bloom
You hear my humming flight.
- [Little girl, ruby-red silk collar, waist white, skirt green, wings black.]

The Wild Canary

1. The warblers, wrens, and vireo,
 And other little folks
 Too busy are with beak and claw
 On nests in cosy nooks.
 They could not come to meet at the club,
 They sent me to see to the law.

2. In brier, thorn, and berry bush
 We sing sweet harmony
 Live beauty lend to herb and rush
 All spring and summer day.
 The hawks and owls our twittering mocks,
 As chirping we flit through the rocks.

3. Wild Canary the children have called me,
 But the bookish and prosy bird-man
 He dryly wrote, "Yellow Warbler,"
 I hope his prose will not stand.
 [Boy or girl, entirely in canary yellow.]

The Catbird

1. To call me a Catbird is bad prosy lore,
 Call me Tanglebird rather, 'twill please me much
 more.
 I make little show, my gown is quite plain,
 Tinsel, ribbons, and fashion in the briars are vain.
 I'm a busy housewife and mother, you know,
 But my song is as sweet as any bird's in the show.

2. That farmer there says I steal berries and fruit ;
 And for that against me he will enter his suit.
 Now his bushes and shrubs and many a tree
 I keep from great worms and big beetles free
 All the long springtime. Can't he comprehend
 That I take only what is my due from the land ?
3. The robin, myself, the long-tailed thrush,
 We gladden his heart from twig, vine, and bush.
 His horses and cows surely eat oats and corn
 From almost the very first day they are born.
 Now, my dear old farmer, don't fume and fret,
 You don't pay us half the value you get.

[Girl of ten to fourteen, entirely in dark slate-gray.]

The Swallows

1. Of air and breeze are children we,
 Like summer clouds so light,
 O'er brook and spring and meadow free
 We wind our graceful flight.
2. From early morn till late at night
 You children laugh and play,
 We swallows rise with morning's light
 And glide about all day.
3. Pray, boys, do not throw ugly stones
 Into our cabin warm,
 Pray, to our shelves and clay-wrought cones
 Pray, boys, do us no harm.

4. Our beak is our trowel, for mortar we took
From bank and creek and rill,
With bill and feet we must carve the soft rock,
The sand-bank under the hill.

5. Our homes on the rafters and under the eaves,
Break not, like cruel fools.
In hill, crag, and rock we have quarried our caves
With humble and feeble tools.

[Girl of eight to twelve, short reddish brown gimp, waist brick-red, skirt and wings dark blue.]

The Bluebird

I'm loved by all the children,
I have but little to say ;
Pray, boys, just keep the sparrows
And all the cats away.

[Girl of six to ten, waist reddish brown, skirt and wings military blue.]

The English Sparrow

1. Jip, jip, jip! Who talked about sparrows?
Who said, Keep the sparrows away?
You fellows here shooting with arrows
Couldn't hit the biggest old jay.

2. I come just from Washington city,
And there I had the gayest old time ;
I sang Uncle Sam a fine ditty, —
He made out my papers in rhyme.

3. What's all this noise and chirping,
Why all this attempt at rhymes?
Now stop your trite opera ding-ding,
Better migrate to pleasanter climes!
4. I know you don't much like me,
But I don't care a grasshopper toe.
You say I steal fruit and steal berries
And little peas, cherries, and sloe.
5. You claim I frighten all beauty,
I drive all the song birds away.
Now, if your poor natives can't fight me,
Why don't they in deep forests stay?
6. Some songster has prayed to the chaps here,—
I never do a thing like that;
I'm not afraid of the chaps here,
I'm not afraid of the cat.
7. Your cats and brats and whining kids
Are all much too stupid for me.
With sharp, stout bill and genuine wits
We chirp away, naughty and free.
8. You hate me in parks and premise;
Why not give me notice to quit,
And after you give me the notice,
Why don't you see that I "git"?
9. As soon as the season opens,
We shall no more patiently wait,

We'll steal a free ride to the Klondyke,
And there we will practice to skate.

10. In fall, oh, fine fighting business!
For Cuba and 'Rico aboard!
At 'Lulu we spend merry Christmas,
And then for Manila we start.
11. And now, I see you look weary,
Please, let me get out of this crowd!
Feel hungry, must eat and keep cheery,
Hear the other Chips calling me loud!

[A bold, saucy boy of six to ten : gray vest, coat and trousers brown.]

The Chippie

1. I am the little brown chippie,
I dwell in your clematis vine;
Know little song and less music,
Just love to live near mankind.
2. In April's drizzle and shower,
In flowers and roses of June,
'Mid golden leaves of October
You hear my frolicking tune.

[Girl of six to ten, entirely in brown, with reddish-brown cap.]

The Great Blue Heron

1. I believe in proud seclusion
No whistle and no twitter;
I do hate this dire confusion,
This fuss, and din, and titter.

2. Give me silent meditation
 On the marsh and lonely beach ;
It's in keeping with my station,
 For the crowd, I'm out of reach.
3. Music ! What do you call music ?
 What these hopping pigmies pipe ?
I must say it is too rustic,
 Simply cannot bear the like.
4. Let the wind roar through the rushes,
 Let the waves splash and the rain !
Laugh of loon and scream of eagle,
 Let me hear the bullfrog's strain !
5. Boys, who ever saw me fishing,
 Know that I but seldom lurch,
When I wade to spear the pickerel,
 Catfish, sunfish, pike, and perch.
6. If you boys would learn of fishing,
 Come and watch me with the brant,
Near the isle of tall wild cherries,
 With the coot and cormorant.
7. Boys, if you would master fishing,
 Patience you must have in store.
Meet me on the Devil's Backbone,¹
 There I'll teach you all the lore.

[Tall boy of twelve to fourteen, coat and vest slate gray,
trousers and stockings black, wings slate gray.]

¹ Ridge of boulders in a lake.

The Woodpecker

I am birddom's carpenter,
 Can make the splinters fly ;
 On poles and posts and forest trees
 My merry trade I ply.
 My bill is my chisel,
 My tail is my stool ;
 I'm never tired of climbing.
 For bluebirds, and "daydees,"
 And downy owl babies
 I make the woods ringing,
 Cut rafters and railing.

[Boy of ten to fourteen, with red cap and collar, white vest, trousers black, wings black, with a large white spot.]

The Bobolink

1. Robert of Lincoln is my full name ;
 I sing just for love, not for money or fame.
 My nest on the meadow few boys have found out,
 There I chatter and sing and gambol about ;
 Black, white, and brown are my colors so gay,
 To be sure I'm prettier than any young jay.

2. Just one favor I will ask you :
 Pray, solemnly promise me
 Not to disturb the blackbirds
 Singing their "okalee."
 The blackbirds with the carmine wings,
 And those with golden heads,
 And grackle, and all on bush and reeds,
 That bathe where the cat-tails swing.

3. But most emphatically do I disown
 That laziest of all the birds,
 That rascally fellow with a smart cap in brown
 As cowbird you've known him long.
 He raises his children by hook and by crook,
 Is too lazy to build a nest,
 Imposes on warblers and little folk,
 As a self-invited guest.

[Boy of eight to twelve, light brown collar, vest black, coat white, trousers black, wings black with a large white spot.]

The Tanager and the Redbird

Our Father endowed us with color,
 He denied us the music of voice,
 But when you see the redbird's glow
 And the bluebird's azure hues,
 The tanager's scarlet, the indigo's sheen,
 The oriole's orange beneath, —
 Thank him for the gems of Nature,
 The gems of her bridal wreath.

[Tanager: girl, waist red, skirt black, wings black. Redbird: girl entirely in red, with red cap. One or both may speak. If both speak, they must be careful to keep time together.]

The Quail

1. In summer I sit on the post and call:
 Be bright, be bright, love light!
 In winter, dark winter, when the snow does fall,
 Forget not your little Bob White.

2. Then throw me some wheat, where the worm fence¹
 leans,
 In garden, brush, or field.
 The winter, cold winter leaves Bob White few
 means, —
 Give him of your rich harvest yield.

[Boy of eight to twelve, dressed in a brown calico with white markings of any kind, wings of the same material, collar white.]

The Blue Jay

1. Why do you urchins call a dandy a jay?
 Forbid them to name me dude!
 All you pert fellows, I truly must say,
 Are oftentimes painfully rude!
2. Sure, I have beauty and a voice not so bad,
 I brighten drear winter days;
 I'm never more naughty than 'most any lad
 Though bird eggs I need in my plays.

[Boy of eight to twelve, vest light blue, coat and trousers dark blue, wings dark blue.]

The Owl

1. Whoo-who, whoo-who, don't talk like big fools!
 Who will give me a pair of smoked glasses?
 My ears need some cotton, just reach me a handful;
 Your noise sounds like brass bands in masses.

¹ The old-time zig-zag fence.

2. Report at Hollow Oaks in the dawn,
 I will read you some sense from sound papers.
 But please be as quiet as grass on the lawn,
 I must hear the mice cut their capers.

[Boy, large or small; cap, suit, and wings of brown, with white figures; two tufts of brown paper attached to the cap will suggest the ear feathers.]

The Wild Ducks

1. In reeds and rush and northern rice our mother
 made our home,
 Under her wings we slept at night on moss of the
 muskrat's dome,
 And then we learned to dive and swim,
 As never boys could swim,
 And then we fished for crab and leech,
 And played on the sand of the rippled beach.
2. When the bees have buzzed in the goldenrod long,
 Our wings have grown swift and strong;
 When the first snow falls on rush and broom,
 We journey southward with brant and loon.

[Boy of eight to fourteen, small cap and collar black, vest and trousers very light gray, coat black, wings black.]

The Meadow Lark

1. Snow, cold, and drizzle of coming spring,
 Can never make me cross.
 My heart is ever happy to sing,
 My joy can never be lost.

2. Of field and fallow I am the bird,
From post and wire I call.
To mope or fret I never was heard
In spring or summer or fall.
3. When gossamer white in autumn floats,
When corn and grass stand sear,
My heart still light, no evil forbodes,
I still call "Spring of the Year!"
4. If storms of life and toilsome strife
Load you with care and fear,
Remember the meadow lark's cheerful life,
The song of "Spring of the Year!"

[Girl of ten to fourteen, waist yellow with a crescent of very dark brown, skirt and wings a lighter brown.]

The Baltimore Oriole

1. Hark, the orioles are calling
From the spreading elm!
No more snow and frost is falling,
Summer rules the realm.
2. Color flashes through the bowers,
Sunlight on the lawn;
Winter fled and April showers
For the south wind's balm.
3. On the swaying bough they're singing,
Weaving hammock nests,

Fair sunshine and flowers they're bringing,
Our resplendent guests.

[Girl of eight to fourteen, cap black, waist bright orange, skirt black with two long yellow triangles tapering upward, wings black with white edges.]

The Child and the Chickadee

1. Oh, there's the little chickadee bird
That climbs on our trees, the large and the small.
Oh, tell me, what do you find on the fir,
And aren't you afraid you will fall?
2. Why child, great beetles, ugly with frowns,
And spiders and other big cattle.
I wonder, can't children see the big clowns,
And can you not hear the bark rattle?
3. Now tell me, little birdie so spry,
Who washes your face so clean and so nice?
And do you ever fret, trample, and cry
When cold water runs in your eyes?
4. You babies are the funniest things
Your mothers could possibly have,
With pumpkin heads, with big eyes, and no wings!
Your questions make chickadees laugh.
5. In any weather give us a bath;
We find it the greatest delight
To splash, where brooklets are running so fast
They don't get the time to freeze tight.

6. Ugh, birdie, birdie, how do you dare ?
You'll catch a bad cold like dear auntie Ruth.
And how do you wipe your toes in the air,
Where's apron and towel for your use ?
7. Catch cold, rheumatism and apron and what ?
I know every bug on the shrubs ;
There are no colds, and no " tisms " on the lot,
I never catch colds, — I catch bugs.
8. I never wipe with towels and things ;
My feet are dry in no time,
I strip my feathers and fan my wings,
Then shake them, and fly off to climb.
9. Now tell, where are the chickadee birds,
When storms blow and owls hoot at night,
When wolves prowl after the sheep and the herds,
I scarcely can sleep for sheer fright ?
10. Let storm, let wolf, let owl hoot or howl ;
The snow, let it blow, let it crunch.
We feel not the storm and we fear not the owl,
In tree holes we sleep in a bunch.

[A little girl speaks the child's, a little boy the bird's part. For the boy a light gray collar, and vest; wings, coat, and trousers black.]

Uncle Sam

If you make the birds as happy
In your yards, in parks and fields,
As they are now in your schoolroom,
You will ever have grateful friends.

Early on the summer morning
They will call you, sing to you ;
Sadly they will part in autumn,
Gladly come again in spring.—
Herewith stands the court adjourned.

EXTRACT FROM MR. HORNADAY'S REPORT

“Conclusions Regarding Birds.—Regarding the avian fauna of the United States, the following conclusions are justified by facts:—

“1. Throughout about three-fifths of the whole area of our country, exclusive of Alaska, bird life in general is being annihilated.

“2. The edible birds, about 144 species, have been, and still are, most severely persecuted.

“3. In many localities edible birds of nearly all species have become rare, and some important species are on the point of general extermination.

“4. Owing to the disappearance of the true game birds, our song and insectivorous birds are now being killed for food purposes, and, unless prevented, this abuse of nature is likely to become general.

“5. The extermination, throughout this country, of the so-called ‘plume birds’ is now practically complete.

“6. The persecution of our birds during their nesting season, by egg collectors and by boys generally, has become so universal as to demand immediate and special attention.

“7. Excepting in a few localities, existing measures for the protection of birds, *as they are carried into effect*, are notoriously inadequate for the maintenance of a proper balance of bird life.

“8. Destructive agencies are constantly on the increase.

“9. Under present conditions, and excepting in a few localities, the practical annihilation of all our birds, except the smallest species, and within a comparatively short period, may be regarded as absolutely certain to occur.¹

“10. If the present war of extermination is to be terminated, drastic measures must be adopted and resolutely carried out; and the crusade for protection must be general. No half-way measures will suffice; and it is to be expected that some of the destroyers will be displeased.

“**Recommendations Regarding Birds.** — While at first thought it may seem impossible to propose a series of universal laws for bird protection that can save our bird fauna from annihilation, even if adopted by the different states, we believe it will be found on close examination that the task is not nearly so difficult as it seems. The difficulty lies, not in the framing of comprehensive measures, but in securing their adoption in the various groups of states wherein they are needed. The business of securing the enactment of legislation

¹The protection of migratory birds must be general in order to be effective. New Orleans should not rob Cheyenne of the fruit of her labors in the field for protection.

is a separate question, and need not be discussed here. As to the character of the legislation that would be most effective, there are certain demands so imperative as to be perfectly obvious, and the laws that would satisfy them would be so universally beneficial, their enactment would be desirable to every state and territory, save two or three. They are as follows:—

“1. Prohibit all egg collecting, except under license from state game commissioners, and the payment of a license fee.

“2. Provide for the extermination of the English sparrow.

“3. Prohibit the sale of dead game, at all seasons.¹

“4. Prohibit the killing or capture of wild birds, and of quadrupeds, other than fur-bearing animals, for commercial purposes of any kind. [This will stop the slaughter of birds for millinery purposes.]

“5. Prohibit all spring shooting.

“6. Prohibit the carrying or using of a gun without a license.

“7. *For three years* prohibit the killing or capture of any birds, except such birds of prey as may be declared by the U. S. Biological Survey to be sufficiently noxious to merit destruction. The only exception should be in favor of persons desiring to collect for scientific purposes, *in moderation*, and then only when properly

¹ This has long been earnestly advocated by *Forest and Stream*, and the proposition is constantly gaining advocates. It is also one of the planks in the platform of the League of American Sportsmen.

vouched for by some scientific institution, and duly licensed by the state game commissioners.

“8. At the end of three years, restrict by legal enactment the number of game birds that may be taken in one day, or in any given period, by a single individual.”

Most of these demands are now embodied in the game laws of Minnesota and of several other states. Copies of these laws can be secured from the respective state game wardens. Since Mr. Hornaday's report was written, the cause of bird and game protection has made considerable progress and the prospects are, on the whole, decidedly encouraging.

SECTION VII

GAME PROTECTION FROM THE NATURE LOVER'S POINT OF VIEW

Better to hunt in fields for health unbought,
Than fee the doctor for a nauseous draught.
The wise for cure on exercise depend ;
God never made his work for man to mend.

DRYDEN, *Cymon and Iphigenia*.

IT is not necessary to argue game and fish protection with the intelligent and broad-minded sportsmen. They have long become aware that the treasures of large and of small game mammals, of aquatic and gallinaceous birds, and of game fish which nature has so lavishly bestowed upon this country are nevertheless far from inexhaustible. In fact, none of nature's treasures are inexhaustible, when greed, folly, and ignorance form the exploitation company and begin, as they always do, by cutting down the trees that bear the golden apples. Much progress has been made within recent years for the sportsmen and by them. The League of American Sportsmen has already been organized in thirteen states, and it will not be long before this society will extend its work to every state and territory.

Is it Right to Hunt and Fish? — Many a lover of nature and many a parent and teacher has no doubt asked himself: Is it right to take animal life for sport and recreation? Should I buy my boy the gun that

he is so longing for and which he would value higher than all the wealth and glory of Solomon? Most of us concede that it is right to kill animals for food and clothing, and to enslave them to do our heavy work. These points we must concede or turn vegetarians, and, if all mankind became vegetarian they would have to kill a few animals now and then or the animals would kill them and crowd them off the earth. As a food supply, wild mammals and birds are of importance only in frontier settlements. If we kill and eat wild or tame animals, we destroy a lower form of life so that a higher form may continue. This is in general the course of nature. If the fatigued business man, statesman, and professional man leave the bustle of the city, the dust, and the artificial light of their offices to gain new health and elasticity of mind and body on bass and trout streams, or with the wild ducks on the weird sea-coast and inland marshes, or on a stalk after deer and moose in the wild woods, they do nothing wrong. On the contrary they make the wild creatures of woods, lakes, fields, and stream serve a far higher purpose than he who kills them merely to satisfy the cravings of a hungry stomach. If the President of the United States can keep in good health and buoyant spirits by going on a duck-shooting trip, so that he can more safely steer the nation through all the vicissitudes of national and international difficulties, by all means let him go after the ducks, whenever his duties permit. The ducks he bags could not be sacrificed for a more worthy purpose. The question has still another aspect. If game were

not hunted for sport, it would be hunted for profit by the market hunter. Thus a few men would benefit, while the large number would be excluded. In some localities birds and beasts of prey would greatly increase, and in other regions game animals would have to be destroyed to prevent damage to agricultural or stock-raising interests.

Therefore, if you feel inclined to use gun and rod, follow your inclination, but obey the game laws, so that the next man will also have some recreation left, in other words: Don't be a game hog or a fish hog! If your boy wants a gun, by all means buy him one if you can afford it, but have him taught how to handle it, and what is game and what is not. A week after chickens, ducks, or deer will do you more good than all the pills you can buy and eat in a twelvemonth.

Every one who has looked into the question knows that real sportsmen kill their game more humanely than market hunters, head, skin or bounty hunters. A man who hunts wolves and coyotes for bounty is, however, doing good work for the sportsmen as well as for farmers and stock-raisers.

If you go into fields and woods for sport, do not shoot unless you have a reasonable chance to kill, and always try to procure the animal you have wounded. A sportsman is not a savage, he leaves something for his neighbor, and does not kill and catch more than he can use. A sportsman never shoots a doe and starves the suckling fawn, he never kills the mother bird and starves the nestlings. Nor would he think of snaring or trapping

any wild creature in a way that would prolong its misery for hours, or even for days.

The sportsman does not forget that animals have rights. Every species, except a parasite, has the right to exist, and true sportsmen have always been ready to protect species threatened by extermination. The scientist and the lover of nature can view only with feelings of the deepest concern and regret, the disappearance of any species from our fauna or flora. The fauna of the earth is already much impoverished by the extinction of many large mammals and birds both on this and other continents. Many of the large mammals of the Quaternary period have most likely been exterminated by prehistoric man. Several nations, including the United States, have established reservations which furnish an asylum for the wild creatures of the land. In this country we have the Yellowstone Park, and there are no reasons why forest reserves should not furnish an undisturbed breeding ground for large game. The German government has established in its African possessions forest reserves for the African elephant and other large game.

It goes without argument that every lover of nature would like to see all our wild animals preserved from extinction. This protection is, however, of special interest to all bird lovers, and they should, therefore, do all in their power to further the cause of game and fish protection.

As has already been shown in a previous chapter, the extinction of game birds would undoubtedly be followed

by the hunting of song birds. But while we have game fish to angle, and mammals and real game birds to hunt, the shooting of song birds is looked upon as small and disgraceful, and popular opinion can easily be educated to stigmatize it as contemptible and criminal. Laws protecting song birds would be much more difficult to enforce after our fish and game had become extinct. In England, Germany, France, and Austria, laws for the protection of song birds, even if rigidly observed, are only partially effective, because in several South European countries these same protected birds are caught, netted, and killed by tens of thousands during the fall and spring migrations. There is no game left in these countries, and it will take decades before the people there will appreciate the value and the ethics of bird protection.

Everyone interested in game protection should join the League of American Sportsmen. Drop a post card for information to the L. A. S. Warden in your state, or to the League of American Sportsmen, 19 West 24th Street, New York.

This is a matter in which all grades and classes of schools should be interested, but I regret to say that not many teachers have even begun to do their duty towards the birds and our wild kindred. I hope that in the near future the League of American Sportsmen may devise a plan by which boys in high schools, normal schools, and academies, and young men in college may join the league for a nominal sum, — which should entitle them to membership until they

have begun to earn money for themselves. One dollar a year is a small fee, but it is a large sum for a school-boy and for many college students. The league must get the boys, and many of them will join if the right terms are offered.

HUNTING WITH A CAMERA

If hunting with a gun is against your taste, then hunt with a camera. You can then shoot in your yard and in city parks, you can hunt at any time of the year, and you will never need to harm any living creature. Hunting with a camera calls for even greater zeal and endurance than hunting with gun and rifle, and is an outdoor sport that cannot be too highly recommended to girls and ladies as well as to men and boys.

The average American men are as strong and as robust as the men of any European nation. It has been doubted by people who have had opportunities for observing that the average American woman is as strong as her European sister. Our boys practice all kinds of sports and athletics, our girls are too much confined to an indoor life.

Let them accompany their brothers and friends into woods and fields and experience the buoyancy of roughing it. There can be nothing unwomanly in hunting with a camera.

See: *H. S. Salt*. "Animals' Rights." The Macmillan Company, New York and London. The author condemns hunting entirely. He says, "The sportsman being, in the great majority of instances, a man of slow perception, he naturally finds it much easier to follow the hounds than to follow an argument."

THE PURPOSE AND THE PRINCIPLES OF THE LEAGUE OF AMERICAN SPORTSMEN

The League of American Sportsmen is organized for the purpose of protecting the game and game fishes ; the song, insectivorous, and other innocent birds, not classed as game birds.

Its prime object is to enforce game laws, where such exist, and to secure and enforce such laws where not now in existence.

It aims to promote good fellowship among sportsmen ; to foster in the minds of the people a love of nature and of nature's works ; to encourage the propagation of game and game fishes, and the re-stocking of game fields and public waters. To these ends it will act in unison with state, county, and municipal authorities who aim at similar ends.¹

The League of American Sportsmen will not compete with any other organization that has similar objects in view. On the contrary, it desires to enlist the sympathies of, and to coöperate with, all such.

The League of American Sportsmen is opposed to excessive slaughter of game and fish, under the name of sport. We are opposed to the killing of any inno-

¹ A person knowing of violations of the game laws should promptly notify the L. A. S. game warden or the respective state game warden, who may be addressed in the following manner :—

STATE GAME WARDEN,
ST. PAUL, MINN.

The office of the state game warden is nearly always at the state capital.

cent bird or animal, which is not game, in the name of sport, or in wantonness, or for commercial purposes.

We are opposed to the sale of game and game fishes, at all times and under all circumstances.

We believe in reasonable bags. We believe the killing of game and the taking of fish should be limited by law, not only as to seasons, but that the bag for any one man for a day, and for a season, should be defined by law.

We believe in a gun-license law, with severe penalties for violations thereof.

We, as individual members of this League, pledge ourselves to work for the education of the public, and especially of our boys, on the lines indicated above; to cooperate with our officers, and with state or municipal officers, in the enforcement of game laws, whenever an opportunity offers.

EXTRACT FROM THE CONSTITUTION OF THE L. A. S.

ARTICLE I

SECTION 1. This organization shall be known as the LEAGUE OF AMERICAN SPORTSMEN.

SEC. 2. Its objects shall be the preservation and propagation of game and game fishes, of song and insectivorous birds and of forests; the education of men, women and children to a love of nature and of nature's works; to a proper respect for game laws and to a proper abhorrence for the custom so prevalent to-

day, among men and boys, of killing every living thing found in the woods, for the mere sake of killing.

ARTICLE III

SEC. 2. *Any woman may become an associate member by complying with the provisions of Section 1. Associate members shall have all the privileges of the League except those of voting and holding office.*

SEC. 3. *All ministers of the gospel and all teachers in universities, colleges, public or private schools who will pledge themselves to coöperate with the League of American Sportsmen in educating their people to respect game and fish laws and to aid in the preservation of birds, mammals, fishes and forests, shall, on application, be made honorary members of the L. A. S.*

OFFICERS OF THE LEAGUE OF AMERICAN SPORTSMEN

President, G. O. Shields, 19 West Twenty-fourth street, New York.¹

1st Vice-President, Dr. C. Hart Merriam, Washington, D.C.

2d Vice-President, E. S. Thompson, 144 Fifth avenue, New York.

3d Vice-President, Hon. W. A. Richards, General Land Office, Washington, D.C.

4th Vice-President, W. T. Hornaday, 69 Wall street, New York.

5th Vice-President, A. A. Anderson, 93 Fifth avenue, New York.

Secretary, Arthur F. Rice, 155 Pennington avenue, Passaic, N.J.

Treasurer, F. S. Hyatt, National Exchange Bank, 90 West Broadway, New York.

General Counsel, Julius H. Seymour, 35 Wall street, New York.

¹ Taken from *Recreation*, October, 1899.

NEW YORK DIVISION.

A. E. Pond, Chief Warden, 124 Fifth avenue, New York.

PENNSYLVANIA DIVISION.

C. P. Emerson, Chief Warden, 189 North Perry street, Titusville.

NEW JERSEY DIVISION.

A. W. Van Saun, Chief Warden, Pompton Plains.

MASSACHUSETTS DIVISION.

Dr. Heber Bishop, Chief Warden, 4 Post-office square, Boston.

CONNECTICUT DIVISION.

Ralph B. Lawton, Chief Warden, Bridgeport.

MICHIGAN DIVISION.

J. Elmer Pratt, Chief Warden, Grand Rapids.

MONTANA DIVISION.

Professor M. J. Elrod, Chief Warden, Missoula.

WASHINGTON DIVISION.

J. S. Stangroom, Chief Warden, New Whatcom.

WYOMING DIVISION.

Dr. Frank Dunham, Chief Warden, Lander.

WISCONSIN DIVISION.

James T. Drought, Chief Warden, Milwaukee.

OHIO DIVISION.

L. H. Reutinger, Chief Warden, Athens.

ILLINOIS DIVISION.

H. W. Loveday, Chief Warden, Schiller Building, Chicago.

MINNESOTA DIVISION.

S. A. Smart, Chief Warden, G. N. Gen. Office, St. Paul.

Applications for membership and orders for badges should be addressed to Arthur F. Rice, Secretary, 19 West Twenty-fourth street, New York. For a list of Local Wardens see Recreation.

EXTRACTS FROM MR. HORNADAY'S REPORT

“Species Reported as ‘Extinct,’ or ‘Becoming Extinct.’

Mammals.

“The larger quadrupeds, generally	6 reports.
Bison; Buffalo (<i>Bos americanus</i>)	15 reports.
Elk; Wapiti (<i>Cervus canadensis</i>).	22 reports.
Moose (<i>Alces americana</i>)	7 reports.
Virginia, or White-tailed Deer (<i>Cariacus virginianus</i>)	32 reports.
Mule Deer (<i>Cariacus macrotis</i>)	3 reports.
Black-tailed Deer (<i>Cariacus columbianus</i>)	1 report.
Woodland Caribou (<i>Rangifer caribou</i>)	2 reports.
Prong-horned Antelope (<i>Antilocapra americana</i>)	15 reports.
Mountain Sheep (<i>Ovis montana</i>)	10 reports.
Mountain Goat (<i>Haploceros montanus</i>)	2 reports.
‘Bears, generally,’	1 report.
California Grizzly Bear (<i>Ursus horribilis horricus</i>)	2 reports.
Black Bear (<i>Ursus americanus</i>)	15 reports.
Jaguar (<i>Felis onca</i>)	1 report.
Puma; Mountain Lion (<i>Felis concolor</i>)	6 reports.
Red Lynx (<i>Lynx rufus</i>)	5 reports.
Otter (<i>Lutra canadensis</i>)	11 reports.
Beaver (<i>Castor canadensis</i>)	22 reports.

Birds.

“All birds, generally	3 reports.
Game birds, generally (meaning gallinaceous species)	5 reports.
Shore birds, generally	5 reports.
Geese and ducks, generally	20 reports.
Hérons and egrets, generally; plume birds	12 reports.
Hawks, generally	3 reports.
Owls, generally	4 reports.

Wild Turkey (<i>Meleagris gallopavo</i>)	30 reports.
Ruffed Grouse (<i>Bonasa umbellus</i>)	20 reports.
Pinnated Grouse; Prairie Hen *(<i>Tympanuchus ameri-</i> <i>canus</i>)	13 reports.
Heath Hen (<i>Tympanuchus cupido</i>)	1 report.
Passenger Pigeon (<i>Ectopistes migratorius</i>)	35 reports.
Bluebird (<i>Sialia sialis</i>)	15 reports.
Carolina Paroquet (<i>Conurus carolinensis</i>)	5 reports.
Wood Duck (<i>Aix sponsa</i>)	5 reports.
Flamingo (<i>Phœnicopterus ruber</i>)	1 report.
Roseate Spoonbill (<i>Ajaja ajaja</i>)	3 reports.
White Heron (<i>Ardea candidissima</i>)	10 reports.
Ivory-billed Woodpecker (<i>Campephilus principalis</i>)	4 reports.
Pileated Woodpecker (<i>Ceophlæus pileatus</i>)	4 reports.
California Vulture (<i>Pseudogryphus californianus</i>)	1 report.

“From a much larger number of birds and mammals than are included in the above lists, these have been selected because there is good reason to believe that, under present conditions, they are all certain to become practically extinct *throughout the whole United States* within a few years. For the majority of the above, *total* extinction — which means the death of the last individual of a species or race — probably is far away. The qualified term, *practical* extinction, now destined to come into very general use, may properly be applied to any species which has become so rare in a state of nature that it is an impossibility to discover living representatives by seeking for them. The larger and more conspicuous the quadruped or bird, the more quickly it is exterminated. All persons who have any regard for the preservation of the few wild herds

of elk, antelope, deer, mountain sheep, and other 'big game' mammals that still exist in our country, should be warned by the fate of the great northern herd of American bison, and act in time. In 1880 it was estimated by the hunters and fur-buyers of Montana that 'the buffalo range' of Montana, Wyoming, and western Dakota contained five hundred thousand buffaloes; and I think the estimate was not over the mark. On June 1, 1883, less than four hundred individuals remained; and it was several years before the people of the United States awoke to a realization of the fact that the great buffalo herds were actually and absolutely *gone!* With the fate of the buffalo before our eyes, it requires no seer to predict, with absolute certainty, that unless thorough and drastic measures are immediately taken to preserve the remnants of our once splendid herds of game quadrupeds, and flocks of game birds, a very few years more — we will say ten for some and fifteen for others — will find our country without enough wild representatives of those species to stock a zoölogical garden.

“Conclusions Regarding Western Mammals. —

“1. Throughout the whole region west of the Mississippi River, except in the Yellowstone Park and Colorado, all the large quadrupeds, save gray wolves and coyotes, are being shot down several times faster than they multiply.

“2. Under existing conditions, their general annihilation within a few years' time (save in the two localities noted) may be regarded as a certainty.

“3. Outside of areas actually protected, the prong-horned antelope will be the next large species to disappear; and it will be closely followed by the mountain sheep, mountain goat, California grizzly bear, beaver, elk, and mule deer.

“4. It should be accepted as a fixed fact that any western state or territory so sparsely settled that large quadrupeds can successfully hide and breed in its wilderness areas, is not financially able to employ a force of salaried game wardens large enough to maintain surveillance over all persons who are inclined to kill game.

“5. *The professional guides and hunters, the ranchmen and other country residents of the Rocky Mountain and Pacific Coast regions, are the only men who have it within their power, or who ever will have it within their power, to save our noblest species of wild game animals from complete annihilation.*

“6. These men are the ones who will lose most, both in money and in food, by the destruction of the game animals that now furnish them a valuable source of revenue.

“**Recommendations Regarding Mammals.** — 1. As a matter of duty to their own interests, the guides, hunters, ranchmen, and sportsmen of the Rocky Mountain and Pacific Coast regions should assemble and decide what restrictions shall be placed upon the killing of large game — as to the number of head per man that may be taken, license fees and fines, and as to the necessity of total prohibition for given periods.

“2. Every state and territory now inhabited by large

game should immediately enact a law prohibiting the killing of any female hoofed animal, under any and all circumstances, and also prohibiting the killing of any hoofed animal less than one year old.

“3. Throughout every state and territory now inhabited by them, the killing of antelope, mountain sheep and mountain goats should be absolutely prohibited for ten years; and the possession of a fresh skin or head should be regarded as *prima facie* evidence of violation of law.

“4. Henceforth every person visiting the Western regions in quest of large game should regard it as his duty to coöperate with state and territorial authorities in the observance and enforcement of the game laws, to kill sparingly at all times, and under no circumstances to shoot female or yearling animals.

“5. No guide should conduct a hunting party in quest of game unless each member of it pledged himself to observe the rules of moderation in shooting that now are morally binding upon all.

“6. In view of the alarming decrease of our large game animals, it is time for the adoption throughout the United States of an unwritten law that any man who kills a female hoofed animal is not to be considered a true and honorable sportsman.

“7. Every state and territory containing large game should collect a license fee on each gun carried or used in hunting; and all funds derived from this source and from fines should be used in payment of the salaries of game wardens.

“8. The sale of dead game should be prohibited.

“There are few persons, intelligent or otherwise, who will deny the desirability of preserving from destruction the splendid vertebrate fauna which still inhabits our country. Throughout the whole United States, the love of natural history, and interest in zoölogical studies — and their promotion — is growing at a rapid rate.

“If all the people of this country were assembled, and a rising vote taken on the question — Are our birds and mammals worth preserving? we believe nearly every man, woman and child would stand up to be counted. Even the worst destroyers believe in limiting the destructiveness of others! Thanks to the extent of our territory, and the diversity of its physical aspect, our mammalian and avian faunas are still exceedingly rich and varied, as well as interesting and valuable. With the exception of a few noxious species, our wild creatures are well worth preserving, and their further annihilation would be nothing less than a national disgrace. And even though we of to-day should feel little interest in the preservation of the animal life indigenous to North America, it must be remembered that *we owe a duty to succeeding generations*, and we have no right to rob those who come after us of the wealth of living forms that Nature has so lavishly bestowed upon this continent, and maintained in great abundance until fifteen years ago. The zoölogical estate now in our possession is not ours in fee simple, *but by inheritance under entail*; and it must

be transmitted to those who come after us, in a good state of preservation.

“Beyond all possibility of dispute, the time has now arrived when it is the duty of all American zoölogists, all our academies of science, zoölogical societies and museums, and all our higher institutions of learning, to unite and become actively and aggressively interested in comprehensive measures for protection. In co-operation with the Audubon Society of the State of New York, the American Museum of Natural History, through its President and through Dr. J. A. Allen and Mr. Frank M. Chapman, is already, and for the past year has been, actively engaged in measures designed to save our remaining birds from annihilation. During the last twelve months, the Audubon Society has sent out 35,000 circulars, and solicited active assistance from over 300 newspapers in this state.

“It seems to us that the United States Biological Survey, the Smithsonian Institution, the Philadelphia Academy of Sciences, the American Museum of Natural History, the New York Zoölogical Society, Yale University, Harvard University, Cornell University, the Field Museum and the Leland Stanford University, each should employ a competent man, provide him with a fair allowance for expenses, and instruct him to devote his entire time and energy to the business of securing adequate protective laws *throughout the whole United States*, and in furthering all legitimate measures for the protection of birds and mammals. It is reasonable to believe that four good men could enter the

Rocky Mountain region, bring together the guides and ranchmen, and in less than two years accomplish results of great and lasting benefit.

“We believe that the time is ripe for a general rebellion against the forces of destruction. We believe that the American people will yet rise to the seriousness of the situation, and bring about a complete revolution in behalf of ‘*the protection of our native animals,*’ which is one of the prime objects for which the New York Zoölogical Society was founded.”

SECTION VIII

MISCELLANEOUS INFORMATION

I. MAGAZINES

1. Recreation. Published by G. O. Shields, 19 West Twenty-fourth street, New York. \$1.00 a year. Monthly. The organ of the League of American Sportsmen. On the work and present status of the League, see *Recreation*, April, 1899, and succeeding numbers.

2. Bird Lore. Published by The Macmillan Company, 66 Fifth avenue, New York. \$1.00 a year. Bi-monthly. The magazine is devoted to Bird Protection and is the organ of The Audubon Societies.

3. The Auk. Published by L. S. Foster, New York City. Quarterly. The organ of The American Ornithologists' Union. See the report of a Committee on Bird Protection in the January number of 1898.

4. Forest and Stream, New York City. Weekly. A paper valuable alike to the sportsman and the naturalist. See an interesting report in *Forest and Stream* of February 19, 1898, on the Interstate Game Wardens' Convention held at Chicago in February, 1898.

5. The Forester. Published by The American Forestry Association, 45 Wyatt Building, Washington, D. C. Monthly. \$1.00 a year. The magazine is devoted to the care and use of forests, forest trees and related subjects. It is a very valuable magazine, which ought to be in every public and in every school library. See Volume IV, 1898, for a large number of interesting and instructive articles.

6. Our Animal Friends. Published by the American Society for the Prevention of Cruelty to Animals, Madison avenue and Twenty-sixth street, New York.

7. Our Dumb Animals. Published by the Massachusetts Society for the Prevention of Cruelty to Animals, 19 Milk street, Boston, Mass. The paper is also the organ of the American Humane Education Society and of the American Bands of Mercy.

8. The National Humane Educator, 216 West Fourth street, Cincinnati, O.

Most of these magazines will mail a free sample copy.

II. SOCIETIES

1. The Audubon Societies. See page 93. Correspondence in regard to forming Audubon Societies or other Bird Protective Societies may be addressed to Mrs. Mabel Osgood Wright, Fairfield, Conn.

2. The League of American Sportsmen. See pages 132-135.

3. The Agassiz Association. For full information write to Mr. H. H. Ballard, Pittsfield, Mass., or see the Handbook of the Agassiz Association.

4. Society for the Protection of Birds. Mrs. F. E. Lemon, *Secretary*, Hillcrest, Redhill, England. Publishing Department, 326 High Holborn, W. C., England.

5. Bund der Vogelfreunde, Graz, Austria.

6. American Humane Education Society. Geo. P. Angell, *President*, 19 Milk street, Boston, Mass.

7. Bands of Mercy, Geo. P. Angell, *President*, 19 Milk street, Boston, Mass. These bands have been organized among the school children of many cities, towns, and country districts.

8. The Societies for the Prevention of Cruelty to Animals and the Humane Societies.

Besides the general humane work done by them, some of these societies have done very effective work

in bird protection. The society of St. Paul, Minn., has posted hundreds of the following placard: —

“\$5.00 REWARD

For information which will lead to the arrest and conviction of any person killing or attempting to kill any harmless birds, or robbing or destroying the nests thereof. Boys with rubber slings or pop-guns are hereby warned.

HUMANE SOCIETY,

W. L. WILSON, *President.*

MISS ANNA V. WRIGHT, *Secretary.*

Chamber of Commerce Building.”

In *Our Dumb Animals* of August, 1899, is found the following offer: —

“PROTECTION OF BIRDS

I hereby offer *twenty* prizes of \$10 each, and *forty* prizes of \$5 each, for evidence by which our Massachusetts Society for the Prevention of Cruelty to Animals shall convict persons of violating the laws of Massachusetts by killing any insect-eating bird or taking eggs from its nest.

GEO. T. ANGELL, *President.*”

I enclose a list of the most important of these societies in the United States and Canada. In many states a number of local societies are organized. For these and for information about similar societies in foreign countries the reader is referred to the report of 1899 of the American Society P. C. A., Madison avenue and Twenty-sixth street, New York. The list here given is taken from that report. Concerning the organization and the work of local societies, information can be obtained from the respective state society.

HUMANE SOCIETIES IN THE UNITED STATES AND CANADA

NEW YORK. The American Society for the Prevention of Cruelty to Animals. Madison avenue and Twenty-sixth street, New York.

ALABAMA. Mobile Society for the Prevention of Cruelty to Animals. 16 South Royal street, Mobile.

ARIZONA. Society for the Prevention of Cruelty to Animals. Tucson.

ARKANSAS. Humane Society. Little Rock.

CALIFORNIA. The San Francisco Society for the Prevention of Cruelty to Animals. 403 Parrott Building, San Francisco.

COLORADO. Colorado Humane Society. 5 Jacobson Building, Denver.

CONNECTICUT. The Connecticut Humane Society. Hartford.

DELAWARE. Delaware Society for the Prevention of Cruelty to Animals. 606 Market street, Wilmington.

DISTRICT OF COLUMBIA. The Washington Humane Society. Room 10, Sun Building, Washington, D. C.

FLORIDA. St. Augustine Humane Society. St. Augustine.

GEORGIA. Georgia Society for the Prevention of Cruelty to Animals. 1 McIntosh street, Augusta.

ILLINOIS. The Illinois Humane Society. 560 Wabash avenue, Chicago.

INDIANA. The Indiana Humane Society. 42 Lombard Building, Indianapolis.

IOWA. The Iowa Humane Society. Des Moines.

KANSAS. The Kansas Humane Society. Wichita.

KENTUCKY. Kentucky Humane Society for Prevention of Cruelty. Masonic Temple, 411 West Green street, Louisville.

LOUISIANA. Louisiana State Society for Prevention of Cruelty to Animals. 606 Commercial place, New Orleans.

MAINE. Maine State Society for the Protection of Animals. Portland.

MARYLAND. The Maryland Society for the Prevention of Cruelty to Animals. 323 North Charles street, Baltimore.

MASSACHUSETTS. The Massachusetts Society for the Prevention of Cruelty to Animals. 19 Milk street, Boston.

MICHIGAN. Michigan Society for the Prevention of Cruelty to Animals. Detroit.

MINNESOTA. St. Paul Society for Prevention of Cruelty. Chamber of Commerce Building, St. Paul.

MISSISSIPPI. The Mississippi Society for the Prevention of Cruelty to Animals. Natchez.

MISSOURI. The Humane Society of Missouri. 506 and 508 Columbia Building, Eighth and Locust streets, St. Louis.

NEBRASKA. The Nebraska Humane Society. 15 Commercial National Bank Building, Omaha.

NEW HAMPSHIRE. New Hampshire Society for the Prevention of Cruelty to Animals. 1 Market street, Portsmouth.

NEW JERSEY. The New Jersey Society for the Prevention of Cruelty to Animals. 507 Prudential Building, Newark.

NEW YORK. The Mohawk and Hudson River Humane Society. 287 State street, Albany.

NORTH CAROLINA. The North Carolina Society for the Prevention of Cruelty to Animals. 17 Paragon Building, Asheville.

OHIO. The Ohio Humane Society. 24 East Ninth street, Cincinnati.

OREGON. The Oregon Humane Society. 72 Third street, Portland.

PENNSYLVANIA. The Pennsylvania Society for the Prevention of Cruelty to Animals. 1627 Chestnut street, Philadelphia.

RHODE ISLAND. Rhode Island Society for the Prevention of Cruelty to Animals. 61 Westminster street, Providence.

SOUTH CAROLINA. The South Carolina Society for the Prevention of Cruelty to Animals. Charleston.

TENNESSEE. Tennessee Society for the Prevention of Cruelty to Animals and Children. 337 Mississippi avenue, Memphis.

TEXAS. The Galveston Society for the Prevention of Cruelty to Animals. Galveston.

UTAH. Utah Humane Society. Salt Lake City.

VERMONT. The Vermont Humane Society. Chester.

VIRGINIA. Society for the Prevention of Cruelty to Animals.
618 East Main street, Richmond.

WASHINGTON. Tacoma Society for the Prevention of Cruelty to Animals. Chamber of Commerce Building, Tacoma.

WEST VIRGINIA. West Virginia Society for the Prevention of Cruelty to Animals. Wheeling.

WISCONSIN. The Wisconsin Humane Society. 495 Milwaukee street, Milwaukee.

BRITISH NORTH AMERICA. The Nova Scotia Society for the Prevention of Cruelty. 79 Granville street, Halifax.

The Canadian Society for the Prevention of Cruelty to Animals.
189 St. James street, Montreal.

Ottawa Humane Society. 83 St. Peter street, Ottawa.

Quebec Society for the Prevention of Cruelty to Animals.
Quebec.

New Brunswick Society for the Prevention of Cruelty to Animals. Ferry Building, Water street, St. John.

St. John's Society for the Prevention of Cruelty to Animals. St. John's, Newfoundland.

The Winnipeg Society for the Prevention of Cruelty to Animals.
Winnipeg, Manitoba.

III. THE UNITED STATES DEPARTMENT OF AGRICULTURE

This department consists of the following divisions:—

Division of Chemistry.

Division of Entomology.

Division of Botany.

Division of Vegetable Physiology and Pathology.

Division of Pomology.

Biological Survey.

Division of Soils.

Office of Experiment Stations.

Division of Forestry.

Division of Agrostology.

Office of Road Inquiry.
Experimental Gardens and Grounds.
Division of Publications.
The Library.
Office of Fibre Investigation.
Bureau of Animal Industry.
Division of Statistics.
Section of Foreign Markets.

The Superintendent of Documents, Washington, D. C., furnishes free upon application:

1. A list of publications for sale at a nominal price.
2. A list of publications available for free distribution.
3. A monthly list of new publications.

Among the most popular government publications are the Farmers' Bulletins, a list of which is here given, but many other valuable publications will be found in the three lists mentioned.

FARMERS' BULLETINS

These bulletins are sent free of charge to any address upon application to the Secretary of Agriculture, Washington, D. C. Only the following are available for distribution:—

- No. 15. Some Destructive Potato Diseases: What They Are and How to Prevent Them.
- No. 16. Leguminous Plants for Green Manuring and for Feeding.
- No. 18. Forage Plants for the South.
- No. 19. Important Insecticides: Directions for Their Preparation and Use.
- No. 21. Barnyard Manure.
- No. 22. *Feeding Farm Animals.*
- No. 23. Foods: Nutritive Value and Cost.
- No. 24. Hog Cholera and Swine Plague.
- No. 25. Peanuts: Culture and Uses.
- No. 26. Sweet Potatoes: Culture and Uses.

- No. 27. Flax for Seed and Fiber.
- No. 28. *Weeds: And How to Kill Them.*
- No. 29. Souring of Milk, and Other Changes in Milk Products.
- No. 30. Grape Diseases on the Pacific Coast.
- No. 31. Alfalfa, or Lucern.
- No. 32. Silos and Silage.
- No. 33. Peach Growing for Market.
- No. 34. Meats: Composition and Cooking.
- No. 35. Potato Culture.
- No. 36. Cotton Seed and Its Products.
- No. 37. Kafir Corn: Characteristics, Culture, and Uses.
- No. 38. Spraying for Fruit Diseases.
- No. 39. Onion Culture.
- No. 40. *Farm Drainage.*
- No. 41. *Fowls: Care and Feeding.*
- No. 42. Facts About Milk.
- No. 43. *Sewage Disposal on the Farm.*
- No. 44. Commercial Fertilizers.
- No. 45. Some Insects Injurious to Stored Grain.
- No. 46. *Irrigation in Humid Climates.*
- No. 47. Insects Affecting the Cotton Plant.
- No. 48. The Manuring of Cotton.
- No. 49. Sheep Feeding.
- No. 50. Sorghum as a Forage Crop.
- No. 51. *Standard Varieties of Chickens.*
- No. 52. The Sugar Beet.
- No. 53. *How to Grow Mushrooms.*
- No. 54. *Some Common Birds in Their Relation to Agriculture.*
- No. 55. The Dairy Herd: Its Formation and Management.
- No. 56. Experiment Station Work. Vol. I.
- No. 57. Butter Making on the Farm.
- No. 58. The Soy Bean as a Forage Crop.
- No. 59. *Bee Keeping.*
- No. 60. Methods of Curing Tobacco.
- No. 61. Asparagus Culture.

- No. 62. Marketing Farm Produce.
No. 63. Care of Milk on the Farm.
No. 64. *Ducks and Geese*.
No. 65. Experiment Station Work. Vol. II.
No. 66. Meadows and Pastures.
No. 67. *Forestry for Farmers*.
No. 68. The Black Rot of the Cabbage.
No. 69. Experiment Station Work. Vol. III.
No. 70. The Principal Insect Enemies of the Grape.
No. 71. Some Essentials of Beef Production.
No. 72. Cattle Ranges in the Southwest.
No. 73. Experiment Station Work. Vol. IV.
No. 74. Milk as Food.
No. 75. The Grain Smuts.
No. 76. Tomato Growing.
No. 77. The Liming of Soils.
No. 78. Experiment Station Work. Vol. V.
No. 79. Experiment Station Work. Vol. VI.
No. 80. The Peach Twig-borer; an Important Enemy of Stone
Fruits.
No. 81. Corn Culture in the South.
No. 82. The Culture of Tobacco.
No. 83. Tobacco Soils.
No. 84. Experiment Station Work. Vol. VII.
No. 85. *Fish as Food*.
No. 86. *Thirty Poisonous Plants*.
No. 87. Experiment Station Work. Vol. VIII.
No. 88. Alkali Lands.
No. 89. Cowpeas.
No. 90. The Manufacture of Sorghum Sirup.
No. 91. Potato Diseases and Their Treatment.
No. 93. Sugar as Food.
No. 94. The Vegetable Garden.
No. 95. Good Roads for Farmers.
No. 96. Raising Sheep for Mutton,

No. 97. Experiment Station Work. Vol. X.

No. 98. Suggestions to Southern Farmers.

No. 99. *Three Insect Enemies of Shade Trees.*

IV. AGRICULTURAL EXPERIMENT STATIONS

These stations are now scattered over the United States and Canada, and similar stations have long been established in Europe and elsewhere. They have published much that is of interest to intelligent citizens, and will do more in the near future. Their publications generally refer to special sections of the country, and are particularly valuable for those sections.

LIST OF AGRICULTURAL EXPERIMENT STATIONS IN THE UNITED STATES AND CANADA ¹

(Address mail to them in the following manner: Agricultural Experiment Station, St. Anthony Park, Minn.).

UNITED STATES

STATE.	POST-OFFICE.	STATE.	POST-OFFICE.
Alabama (College) .	Auburn.	Connecticut (State) .	New Haven.
Alabama (Canebrake) . . .	Uniontown.	Connecticut (Storrs)	Storrs.
Arizona	Tucson.	Delaware	Newark.
Arkansas	Fayetteville.	Florida	Lake City.
California	Berkeley.	Georgia	Experiment.
Colorado	Fort Collins.	Idaho	Moscow.
		Illinois	Urbana.

¹ A list of publications issued by the stations of the United States prior to January 1, 1892, was published in the Experiment Station Record, Vol. III, p. 937; a list of those issued during 1892 and 1893 in Bulletin 19 of the Office of Experiment Stations, p. 61; a list of those issued during 1894 in Bulletin 23, p. 58; a list of those issued for 1895 in Bulletin 27, p. 59; a list of those issued for 1896 in Bulletin 39, p. 58, and a list of those issued for 1897 in Bulletin 47, p. 57. For more information on these stations in the United States and other countries, see Bulletin 59, office of Experiment Stations.

UNITED STATES—*Concluded*

STATE.	POST-OFFICE.	STATE.	POST-OFFICE.
Indiana	Lafayette.	New Mexico	Mesilla Park.
Iowa	Ames.	New York (State) .	Geneva.
Kansas	Manhattan.	New York (Cornell).	Ithaca.
Kentucky	Lexington.	North Carolina . .	Raleigh.
Louisiana (Sugar) .	New Orleans.	North Dakota . . .	Fargo.
Louisiana (State) .	Baton Rouge.	Ohio	Wooster.
Louisiana (North) .	Calhoun.	Oklahoma	Stillwater.
Maine	Orono.	Oregon	Corvallis.
Maryland	College Park.	Pennsylvania . . .	State College.
Massachusetts (State)	Amherst.	Rhode Island . . .	Kingston.
Massachusetts (Hatch)	Amherst.	South Carolina . .	Clemson College.
Michigan	Agricultural College.	South Dakota . . .	Brookings.
Minnesota	St. Anthony Park.	Tennessee	Knoxville.
Mississippi	Agricultural College.	Texas	College Station.
Missouri	Columbia.	Utah	Logan.
Montana	Bozeman.	Vermont	Burlington.
Nebraska	Lincoln.	Virginia	Blacksburg.
Nevada	Reno.	Washington	Pullman.
New Hampshire . . .	Durham.	West Virginia . . .	Morgantown.
New Jersey (State) .	New Brunswick.	Wisconsin	Madison.
		Wyoming	Laramie.

CANADA.

PROVINCE.	POST-OFFICE.	PROVINCE.	POST-OFFICE.
Manitoba	Brandon.	Nova Scotia	Nappan.
N. W. Territory . . .	Indian Head.	Ontario	Ottawa.
British Columbia . .	Agassiz.		

A FEW BIRD BOOKS HELPFUL TO THE BEGINNER

1. Wright. *Birdcraft*. The Macmillan Company, New York.
2. Merriam. *Birds of Village and Field*. Houghton, Mifflin & Company, Boston, Mass.
3. Grant. *Our Common Birds and How to Know Them*. Charles Scribner's Sons, New York.
4. Blanchan. *Bird Neighbors*. Doubleday & McClurg Company, Boston, Mass.
5. Blanchan. *Birds that Hunt and are Hunted*. Doubleday & McClurg Company, Boston, Mass.
6. Wright. *Citizen Bird*. The Macmillan Company, New York.
7. Baskett. *The Story of the Birds*. D. Appleton & Company, New York.
8. Jordan. *Manual of the Vertebrates*. A. C. McClurg & Company, Chicago. This book gives keys and brief descriptions of all vertebrates known in the Northern United States. For other valuable but more expensive books on birds, see the catalogues and advertisements of publishers.

GOD made the country, and man made the town;
What wonder, then, that health and virtue, gifts
That can alone make sweet the bitter draught
That life holds out to all, should most abound
And least be threatened in the fields and groves.

WILLIAM COWPER.

INDEX

[Binomials are indexed twice. Publications mentioned in the text are indexed under author and title, except those mentioned in foot-notes and under "Miscellaneous Information," which are not indexed.]

A

- A boy (verse), 107.
- Adults, educating, 92.
- Agricultural experiment stations, 153.
- Agriculture, United States department of, 149.
- Attracting song birds to our homes, 19.
- Audubon societies, directory of, 93.

B

- Bailey*. The Birds and I, 40.
- Baltimore oriole (verses), 119.
- Barb wire coil, tree trunk with (figure), 36.
- Basin, floating bird (figure), 45.
- Basins, bathing and drinking, construction of, 43; floating, 44.
- Bathing fountains, 42.
- Baths, dust, 62.
- Bird and arbor day law of Minnesota, 94.
- Bird basin, floating (figure), 45.
- Bird books, 155.
- Bird census, difficult to take, 5.
- Bird census of the United States, 1; compiled by W. T. Hornaday, 1.
- Bird day in the schools, 98.
- Bird hunters, 85.
- Bird island at Giessen, 29.
- Bird Life, cause of decrease in, Hornaday's report, 11.
- Bird Protection, Wild. *Masefield*, 40.
- Bird students, boys, and collectors, 8.

- Birds and mammals, injurious, 10.
- Birds and mammals extinct or becoming extinct, Hornaday's report, 136.
- Birds before Uncle Sam, 99-122.
- Bird's Christmas tree (figure), 57.
- Birds, are the, decreasing, 1; conclusions regarding, Hornaday's report, 122; decrease of, in percent, 2; education and the, 92; estimate of, for Minnesota, 3; feeding house for (figure), 60; feeding in public parks, 61; feeding in winter, 46-61; game, the decrease of, 13; list of, from Brattleboro, Vt., 53-55; list of, from Cheyenne, Wyo., 79, 80; on hats, 9, 81; protecting the, against cats, 64-67; protecting the, from their natural enemies, 64; recommendations regarding, Hornaday's report, 123; tree planting for, general suggestions on, 28.
- Birds, song, as food, 90; causes for the decrease of, 6; protecting them, etc., 19.
- Birds, The, and I. *Bailey*, 40.
- Bittersweet, false (figure), 23.
- Black stork of Europe, 16.
- Bluebirds, nesting boxes for, 37; (verse), 111.
- Blue heron, great (verses), 113.
- Blue jay (verses), 117.
- Blue-winged or green-winged teal (verse), 104.
- Boards, elevated, 58.
- Bobolink (verses), 115.

Bond, Frank, on fighting the English sparrow, 75-77.
 Books, bird, 155.
Borggreve. Die Vogelschutzfrage, 63.
 Botany, Manual of. *Coulter*, 22; *Gray*, 22.
 Botany of California. *Whitney and Watson*, 22.
 Boxes, nesting; provide, 33.
 Boy, a (verse), 107.
 Boys, collectors, and so-called bird students, 8.
 Bracket shelves for swallows, 38.
 Branching, species with copious, 24.
Britton and Brown. Illustrated Flora, 22.
Brown, Britton and. Illustrated Flora, 22.
 Brown thrasher (verse), 107.
Buck, Parson and. The Wild Flowers of California, 22.
 Bulletins, farmers', 150.
 Burning-bush (figure), 31.

C

California, Botany of. *Whitney and Watson*, 22; The Wild Flowers of. *Parson and Buck*, 22.
 Camera, hunting with a, 131.
 Canary, wild (verses), 109.
 Carrion places, 59.
 Catbird (verses), 109.
 Cat-proof fence (figure), 67.
 Cats causing decrease of birds, 8.
 Cats, protecting birds against, 64-67.
 Causes for the decrease of song birds, 6.
 Causes of decrease in bird life, *Hornaday's* report, 11.
 Cedar, red; burning-bush and (figure), 31.
 Census, bird; difficult to take, 5; of the United States, 1.
Chapman. Flora of the Southern United States, 22.
 Cheyenne, Wy., list of birds from, 79, 80.

Chickadee, child and (verses), 120.
 Chickadees, nesting boxes for, 36.
 Child and chickadee (verses), 120.
 Chipmunks, squirrels and, 68.
 Chippie (verses), 113.
 Christmas tree, birds' (figure), 57.
 Coil, tarred rope, 66.
 Collectors, 84.
 Collectors, boys, and so-called bird students, 8.
 Concluding remarks on nesting boxes, 40.
 Conclusions regarding birds, *Hornaday's* report, 122.
 Conclusions regarding Western mammals, *Hornaday's* report, 138.
 Construction of bathing and drinking basins, 43.
 Copious branching, species with, 24.
Coulter. Manual of Botany, 22.
 Creepers, nesting boxes for, 37.
 Crows, 70.

D

Dana, Mrs. How to know the Wild Flowers, 22.
Davenport, Mrs. Elizabeth B. on feeding birds in winter, 46-53.
 Decrease, causes of; in bird life, *Hornaday's* report, 11.
 Decrease of birds, per cent of, 2.
 Decrease of game birds, the, 13.
 Decrease of song birds, causes for the, 6.
 Dense foliage and fruit, species offering, 26.
 Dense foliage, species with, 24.
 Department of agriculture, 149.
 Desirable species; on account of fruit, 25.
 Directions, general, for nesting boxes, 33.
 Directory of Audubon societies, 93, 94.
 Dogs, 67.
 Drinking and bathing fountains, 42.
 Duck, wood; nesting boxes for, 39.

Ducks, wild (verses), 118.
Dust baths, 62.

E

Educating adults, 92.
Educating the growing generation, 96.
Education and the birds, 92.
Elevated boards, 58.
Enemies, natural, protecting the birds from their, 64.
English sparrow, the, 9.
English sparrow kept in check at Cheyenne, Wy., 75-79.
English sparrow question, 72-79.
English sparrow (verses), 111.
Estimate of birds for Minnesota, 3.
Europe, black stork of, 16.
Evening grosbeaks eating snow, 43.
Evergreens, planting of, 20.
Experiment stations, agricultural, 153.

F

False bitter-sweet (figure), 23.
Farmers' bulletins, 150.
Feeding birds in public parks, 61.
Feeding birds in winter, 46-61.
Feeding house for birds (figure), 60.
Feeding partridges, 59.
Feeding-places, special, 58.
Feeding prairie chickens, 59.
Feeding quail, 59.
Feeding ruffed grouse, 59.
Fence, cat-proof (figure), 67.
Fence of wire netting, 65.
Field places, 58.
Fish and hunt, is it right to, 126.
Floating basins, 44.
Floating bird basin (figure), 45.
Flora, Illustrated. *Britton and Brown*, 22.
Flora of the Southern United States. *Chapman*, 22.
Flowers for hummingbirds, 27.
Flowers, Wild, How to know the. *Mrs. Dana*, 22; *Wild*, of California. *Parson and Buck*, 22.
Flycatchers, shelf and laths for, 38.

Foliage, dense, and fruit, species offering, 26; species with dense, 24.
Food, song birds as, 90; the lack of, 9.
Fountains, drinking and bathing, 42.
Foxes, 68.
Fruit, species desirable on account of, 25.
Fruit and dense foliage, species offering, 26.
Fruit that ripens in summer or autumn, 25.
Fruit that ripens late in autumn, 25.
Furnishing trees, vines, and shrubs, 19.
Futterplätze für Vögel im Winter. *Liebe*, 63.

G

Game birds, the decrease of, 13.
Game protection from the nature lover's point of view, 126.
Gartenvögel, Unsere nützlichen. *Kobelt*, 40.
General directions for nesting boxes, 33.
General suggestions on tree planting for birds, 28.
Generation, educating the growing, 96.
Giessen, bird island at, 29.
Gravel, 63.
Gray. Manual of Botany, 22.
Great blue heron (verses), 113.
Green-winged teal, blue-winged or (verse), 104.
Grosbeak, rose-breasted (verse), 104.
Grosbeaks, evening, eating snow, 43.
Growing generation, educating the, 96.
Gunners, ubiquitous, 87.

H

Hats, birds on, 9, 81.
Hawks, 68.
Heron, great blue (verses), 113; snowy (verses), 103.

Homes, our, attracting birds to, 19.
 Hornaday's report, causes for decrease in bird life, 11; conclusions regarding birds, 122; conclusion regarding Western mammals, 138; per cent of decrease in bird life, 2; questions sent out, 1; recommendations regarding birds, 123; recommendations regarding Western mammals, 139; species reported as extinct or becoming extinct, 136.
 House, feeding; for birds (figure), 60.
 House sparrow, injury caused by, 76.
 Humane Societies in the United States and Canada, directory of, 147.
 Hummingbird (verses), 108.
 Hummingbirds, flowers for, 27.
 Hunt and fish, is it right to, 126.
 Hunting with a camera, 131.

I

Illustrated Flora. *Britton and Brown*, 22.
 Information, miscellaneous, 144.
 Injurious birds and mammals, 10.
 Injury caused by the house sparrow, 76.
 Is it right to hunt and fish? 126.
 Island, bird; at Giessen, 29.
 Islands, groves, parks, and woods, commemorative of noted ornithologists, 95.

J

Jay, blue (verses), 117.
 Jays, 70.

K

Kobelt. Schutz den Vögeln, 40.

L

Lack of food, the, 9.
 Lack of nesting places, 6.
 Lack of water, 7.
 Lake, Loon; in Minnesota, 13.

Lark, meadow (verses), 118.
 League of American Sportsmen, Constitution, extract from, 133; directory of officers, 134; purpose and principles of, 132.
Liebe. Futterplätze für Vögel im Winter, 63.
Liebe. Nistkästen für Vögel, 40.
 Lime, 63.
 List of birds from Brattleboro, Vt., 53.
 List of birds from Cheyenne, Wyo., 79.
 Loon Lake in Minnesota, 13.

M

Magazines, 144.
 Mammals, injurious birds and, 10; recommendations regarding, Hornaday's report, 139.
 Mammals and birds extinct, or becoming extinct, Hornaday's report, 136.
 Martin, purple, nesting boxes for, 38.
Masefield. Wild Bird Protection, 40.
 Material, nesting, 62.
 Meadow lark (verses), 118.
 Minks, 68.
 Minnesota, bird and arbor day law of, 94; estimate of birds for, 3; Loon Lake in, 13.
 Miscellaneous, 62.
 Miscellaneous information, 144.
 Mockingbird (verses), 101.

N

Natural enemies, protecting the birds from their, 64.
 Nature, rural schools and, 30.
 Nature lover's point of view, game protection from, 126.
 Nesting boxes, concluding remarks on, 40; for bluebirds, 37; chickadees, 36; creepers, 37; flycatchers, 38; nuthatches, 37; small owls, 38; swallows, 38; the purple mar-

- tin, 38; the wood duck, 39; tit-mice, 36; woodpeckers, 37; wrens, 36; provide, 33.
- Nesting material, 62.
- Nesting places, lack of, 6.
- Netting, wire; cut on the bias, 66; fence of, 65.
- Nistkästen für Vögel. *Liebe*, 40.
- Noted ornithologists; islands, groves, parks, and woods commemorative of, 95.
- Nuthatches, nesting boxes for, 37.
- O
- Officers of the L. A. S., 134.
- Orchard Oriole (verse), 106.
- Oriole, Baltimore (verses), 119; orchard (verse), 106.
- Ornithologists, noted; islands, groves, parks, and woods commemorative of, 95.
- Our homes, attracting birds to them, 19.
- Owl (verses), 117.
- Owls, 68; nesting boxes for, 38.
- P
- Parks, public, feeding birds in, 61.
- Parson and Buck*. The Wild Flowers of California, 22.
- Places, nesting, lack of, 6; carrion, 59; field, 58; waste, 30.
- Planting, time for, 20; tree, for birds, general suggestions on, 28.
- Planting of evergreens, 20.
- Plant, what to, 19.
- Plants, watering of, 20.
- Poison, use of, in farming and gardening, 9.
- Principles, purpose and, of the L. A. S., 132.
- Protecting birds against cats, 64-67.
- Protecting song birds, etc., 19.
- Protecting the birds from their natural enemies, 64.
- Protection, game, from the nature lover's point of view, 126.
- Provide nesting boxes, 33.
- Public parks, feeding birds in, 61.
- Purple martin, nesting boxes for, 38.
- Purpose and principles of the L. A. S., 132.
- Q
- Quail (verse), 116.
- Question, the English sparrow, 72-79.
- R
- Recommendations regarding birds, Hornaday's report, 123.
- Recommendations regarding mammals, Hornaday's report, 139.
- Redbird, tanager and (verse), 116.
- Red Cedar, burning-bush and (figure), 31.
- Red-headed woodpecker at St. Paul, 4.
- Remarks, concluding, on nesting boxes, 40.
- Right, is it, to hunt and fish, 126.
- Robin (verses), 108.
- Rope coil, tarred, 66.
- Rose-breasted grosbeak (verse), 104.
- Rural schools and nature, 30.
- S
- Sam, Uncle, 101, 102, 103, 104, 106, 107, 121; the birds before, 99.
- Schools, bird day in the, 98; rural, and nature, 30.
- Schutz den Vögeln. *Kobelt*, 40.
- Shelves, bracket; for swallows, 38.
- Shrubs, trees, and vines; furnishing them to birds, 19.
- Skunks, 68.
- Snowy heron (verses), 103.
- Societies, 145; humane, in the United States and Canada, directory of, 147.
- Song birds, as food, 90; causes for the decrease of, 6.
- Source of stock, 20.
- Southern United States, Flora of the. *Chapman*, 22.

Sparrow, English, 9; kept in check at Cheyenne, Wy., 75-79; (verses), 111; house; injury caused by, 76.
 Sparrow question, the English, 72-79.
 Special feeding-places, 58.
 Species desirable on account of fruit, 25.
 Species offering fruit and dense foliage, 26.
 Species reported as extinct, or becoming extinct, Hornaday's report, 136.
 Species with copious branching, 24.
 Species with dense foliage, 24.
 Squirrels and chipmunks, 68.
 Stock, source of, 20.
 St. Paul, red-headed woodpecker at, 4.
 Stork, black; of Europe, 16; white; in Germany, 15.
 Students, bird; boys and collectors, 8.
 Suggestions, general; on tree planting for birds, 28.
 Swallows, bracket shelves for, 38; (verses), 110.

T

Tanager and redbird (verse), 116.
 Tarred rope coil, 66.
 Teal, blue-winged or green-winged (verse), 104.
 Thrasher, brown (verse), 107.
 Time for planting, 20.
 Titmice, nesting boxes for, 36.
 Tree, birds' Christmas (figure), 57.
 Tree planting for birds, general suggestions on, 28.
 Tree trunk with barb wire coil (figure), 36.
 Trees, vines, and shrubs; furnishing them to birds, 19.
 Twiners, 20.

U

Ubiquitous gunners, 85.
 Uncle Sam, 101, 102, 103, 104, 106, 107, 121; the birds before, 99.

Unsere nützlichen Gartenvögel. *Kobelt*, 40.
 Use of poison in farming and gardening, 9.

V

Vines, trees, and shrubs; furnishing them to birds, 19.
 Vögel, Nistkästen für. *Liebe*, 40.
 Vögeln, Schutz den. *Kobelt*, 40.
 Vogelschutzfrage, Die. *Borggreve*, 63.
Voigt. Unsere nützlichen Gartenvögel, 40.

W

Waste places, 30.
 Water, lack of, 7.
 Watering of plants, 20.
Watson, Whitney and. Botany of California, 22.
 Weasels, 68.
 Western mammals, conclusions regarding, Hornaday's report, 138.
 What to plant, 19.
 White stork in Germany, 15.
Whitney and Watson. Botany of California, 22.
 Wild Bird Protection. *Masefield*, 40.
 Wild canary (verses), 109.
 Wild ducks (verses), 118.
 Wild Flowers, How to know the. *Mrs. Dana*, 22; of California. *Parson and Buck*, 22.
 Wild yam vine (figure), 21.
 Winter, feeding birds in, 46-61.
 Wire, barb, coil; tree trunk with (figure), 36.
 Wire netting, cut on the bias, 66; fence of, 65.
 Wood duck, nesting boxes for, 39.
 Woodpecker, red-headed, at St. Paul, 4; (verse), 115.
 Woodpeckers, nesting boxes for, 37.
 Wrens, nesting boxes for, 36.

Y

Yam vine, wild (figure), 21.

A HAND BOOK OF NATURE STUDY

BY

D. LANGE

Author of "Our Native Birds"

Cloth. 12mo. \$1.00, net.

PRESS COMMENTS

Wisconsin Journal of Education :

"It is based on the study of Nature as she presents herself in all her richness and variety, instead of a study of classified specimens such as is more commonly undertaken."

Field and Stream :

"The book, while intended to help teachers in graded and ungraded schools, may be profitably used as a text-book with somewhat maturer pupils. . . . Altogether the book is an admirable one."

Inland Educator :

"The author has succeeded in making a very helpful, practically suggestive work for teachers. The topics treated, the plans followed, and the illustrations, are all excellent."

THE MACMILLAN COMPANY

66 FIFTH AVENUE, NEW YORK

CITIZEN BIRD

Scenes from Bird-Life in Plain English for Beginners

By MABEL O. WRIGHT

AND

DR. ELLIOTT COUES

Cloth. Cr. 8vo. \$1.50, net

A Guide, in Narrative Form, to the Principal Species of North American Birds, with Chapters on Their Anatomy, Economic Value, Habits, etc.

Profusely Illustrated by LOUIS AGASSIZ FUERTES

New York Herald. — "Delightful and at the same time most instructive."

Chicago Tribune. — "There is no other book in existence so well fitted for arousing and directing the interest that all children feel toward the birds."

BIRDCRAFT

*A Field-Book of Two Hundred Song, Game, and
Water Birds*

By MABEL OSGOOD WRIGHT

WITH

Eighty Full-page Plates by LOUIS AGASSIZ FUERTES

Small 4to. \$2.50, net

The Outlook. — "One of the most useful and beautiful books about nature which has yet come from the press."

Inter-Ocean. — ". . . Its excellences have already won the commendation of all naturalists. . . . Such fineness of truth, such accuracy of drawing, could only be the work of genius — not genius which is simply the capacity for hard work, but genius which is innate, heaven-commissioned, 'inbreathed by the life breather,' by the maker and teacher of men and nature alike."

Chautauquan. — "One of the best books that amateurs in the study of ornithology can find . . . direct, forcible, plain, and pleasing."

Saturday Evening Gazette, Boston. — "Of books on birds there are many, all more or less valuable, but 'Birdcraft,' by Mabel O. Wright, has peculiar merits that will endear it to amateur ornithologists. . . . A large number of excellent illustrations throw light on the text and help to make a book that will arouse the delight and win the gratitude of every lover of birds."

THE MACMILLAN COMPANY

66 FIFTH AVENUE, NEW YORK

3 9088 00240059 6

nhbird QL676.L26X

Our native birds;